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No. 2390

United States
Circuit Court of Appeals
For the Ninth Circuit.

Transcript of Record.
(IN THREE VOLUMES.)

STEWART MINING COMPANY, a Corporation,
Appellant,

vs.

JONATHAN BOURNE, Jr., and LILLIAN E.
BOURNE, His Wife,
Appellees.

VOLUME III.
(Pages 705 to 1045, Inclusive.)

Upon Appeal from the United States District Court
for the District of Idaho, Northern Division.

FILED

APR 24 1914

Records of Mrs. Ginn
Count of papers
867

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(Testimony of Walter H. Wiley.)

Q. Isn't it mathematically impossible for a plane dipping at an angle of 70 degrees and striking north 80 west, to intersect with a plane which meets it at an angle of 30 degrees and dipping 45 to 50 degrees in its steepest place—from 30 to 50 would be fairer probably—to give that form of an edge?

A. That is a different proposition, and moreover, all of your propositions seem to not quite correspond with the facts. You took a plane with a strike of north 80 west; that you assume as the strike of the fault.

Q. Yes.

A. That is entirely a different proposition from the strike as shown on this map by your red line marked "apex"; that is about north 40 or 41 west.

Q. Well, say it makes an angle of 40 degrees; I don't care about that; just as we had here from 5 to 50 degrees, and you said practically that I could go on up to 90 and you would still think that it was the top edge till it passed 90. A. Yes.

Q. Now, if this is passed on a plane of its strike, [936—891] north 80 west, and if you wished to change that to some other direction, we have plenty of room to spare, and the plane of that vein is passing on its strike as this is, making an angle with the other of about 45 degrees, if that will please you any better, and a dip of from 30 to 45 degrees, is it possible for it to cut an under edge or a bottom edge as a mathematical proposition?

A. It is shown on that model, those are the conditions as they exist.

(Testimony of Walter H. Wiley.)

Q. You think that is shown on your model?

A. Yes.

Q. Now, in your model you have taken a surface; at how many points have you had the Osborne fault disclosed actually in the ground that would give it the curves and folds and folds and the position that you give it in your model?

A. At the points as shown upon the model.

Q. That is, you had a point at the Fir tunnel?

A. We have three points on the Fir tunnel level.

Q. That is right. Three points on the Fir tunnel level, and you have one point on the—

A. You have beside that the raise that goes up along [937—892] the edge there.

Q. You have the raise there, and a few feet away you have a raise going up east?

A. And a raise which shows the fault, and there it is materially different in direction. The warping of the celluloid is simply caused by fitting it to the workings that actually disclose the fault, that is all; it becomes bent to the position it happens to take as the result of fitting it to those points.

Q. Then, instead of having a dip to your Osborne fault as shown on this model, you have let it take a dip as the fitting together of the model has compelled it to take, to show to the Court as an exact representation of the dip and strike of the Osborne fault, have you?

A. Yes, sir, and it shows it better than anything else could. The fact that it is an irregular warped surface, and not an absolute mathematical plane—

(Testimony of Walter H. Wiley.)

neither nor—the fault are regular; they are both warped surfaces.

Q. But in making both you have not taken any scale, but you have taken them as the model drew the celluloid into position, have you?

A. We have attached the blue celluloid to the drifts [938—893] where the fault is shown, and the result is that the sheet takes the form as shown upon the model.

Q. Thence your model, as far as the position of the dip and strike of the Osborne fault is concerned, if not for the purpose of showing to the Court the particular character and extent of the folds that the actual connections make, and you are not claiming that it is exactly as the Osborne fault is underneath the earth on its actual dip and strike.

A. It is as exactly as can possibly be portrayed, the character of it, with the explanation which I made.

Q. There are some things impossible—

A. One moment, please, that this simply represents the plane of the fault, and not the thickness of it.

The COURT.—Yes, I understand that.

Q. One moment, Mr. Wiley. You do not claim that these poles of this fault, with its variations in dip and strike, are an exact representative of the conditions as they are underground, but that they are as nearly as you can possibly get the celluloid to represent them?

A. They are exactly as they are underground, and

(Testimony of Walter H. Wiley.)

the portrayal is as exact as the nature of the material attached in this way will permit. [939—894]

Q. You have a surface represented there of how many square feet by the scale?

A. It is fifty feet to the inch.

Q. Will you briefly tell me how many square feet are represented in your surface of the Osborne fault?

A. I should say 400 square feet; nearly 20 by 20.

Q. Well, it would be more than that, wouldn't it?

A. Well, I will measure it.

Q. Well, perhaps you are a better guesser than I am. I think it is more than 400 square feet.

A. Well, I gave it to you as altogether too much. It is 16 instead of 20, and here it is 13; it is 16 by 13, so I made it too big; it is not near 400 square feet; it is nearer 300.

Q. How many square feet is that, 400?

A. I did not mean square feet in the ground; I meant square inches on this model.

Q. Well, how many square feet would that make in the ground? That is where I thought you were wrong.

A. Well, that is different. I did not understand. It would be about 800 feet in strike and about 600 feet in length; perhaps 48,000 square feet. [940—895]

Q. 48,000 square feet you have represented in that model of the Osborne fault, an irregular surface, with the marked changes and folds, both in dip and strike.

(Testimony of Walter H. Wiley.)

A. It is 480,000 square feet, that is the right amount.

Q. How many square feet of that entire surface that you have taken are actually disclosed underground?

A. Of course, the entire area is an extremely small portion if figured in square feet, but if you figure in the height, the entire height of the Osborne fault from the 400, from the Fir tunnel—

Q. I want to know how many square feet. We put it in square feet in the ground, and I want to know now how many square feet of actual surface are disclosed there to enable you to give that representation.

A. That would require quite a calculation to find out how many square feet.

Q. It would be a very few, would it not?

A. Comparatively very few, certainly, in square feet, but if you take the height, it would be a very large portion of the height.

Q. Then it follows, Mr. Wiley, that when you answer my hypothetical question by saying that it is shown on the model [941—896] and your model is not a mathematical representation, that it cannot demonstrate the falsity or absurdity of my mathematical proposition.

A. Now, I think if you will permit me, I can illustrate. Take the Fir tunnel level, it is only at three points, and the square feet that that would make would be about the size of that door, at the three points, but I do mean to say that that represents the

(Testimony of Walter H. Wiley.)

strike of that upon the level with absolute accuracy. There might be some slight sinuosities if you drove a drift connecting these different points. This model does at that point represent the exact strike of that, although it is developed in a square area for only a very small part of the entire area. The same explanation applies to each level.

Q. But you have taken those folds and projected them on the sheet?

A. There is no projection about it.

Q. But you have taken them as the model would bend it and warp it and underneath the ground you had no connection with metal points to warp it and wire the Osborne fault, so you have no comparison between the two at all, have you?

A. Why, certainly we have the basis of comparison. [942—897] We have a fault which we know is continuous; we have it developed at a very great number of points over that limited area to determine its position. Those points may be in square a very small portion of the entire area, but they are amply sufficient to determine the shape of that fault and where it lies exactly.

Q. You don't claim that that is mathematically a representation of the Osborne fault. Let us understand each other. Do you say to the Court that that is an exact representation of the fault?

A. If you have a given dip and irregularities such as there are in the Osborne fault, it is the best illustration that I know of that could be made.

Q. That does not answer my question. You say

(Testimony of Walter H. Wiley.)

this is an illustration. Do you say it is an exact representation? Answer my question; it is or it is not.

A. It is as nearly an exact representation as I can make.

Mr. DINES.—I ask the witness to answer the question.

Mr. GRAY.—He has answered it four or five or seven or eight times at least.

Mr. DINES.—No, he has not answered it yet.
[943—898]

The COURT.—Let him answer it, and then explain.

A. It is not an exact representation in the sense that every inch of this surface corresponds to every particle of the fault in the ground. If there were an excavation; for instance if the assumption that was made were true, that this fault was all eroded—the country was all eroded I do not say it would conform at every spot, but it is as near an exact representation as the developments in the ground will permit, and I believe that it is for practical purposes an exact representation.

Q. Now, you say that for practical purposes it is an exact representation. I understood you to say before that it is not an exact representation. I wish to know if you desire to qualify your former answer.

A. I endeavored to qualify it by my explanation.

Q. Do you claim now that this is an exact representation and not an illustration?

Mr. GRAY.—I object, that has already been answered and explained as carefully as anybody could.

(Testimony of Walter H. Wiley.)

Mr. DINES.—Yes, but Mr. Wiley understands what I mean, and he knows the point that I am trying to get the truth of just as well as I do. He does not claim, and does not wish [944—899] under oath to state that that is an exact representation of the dip and strike of the Osborne fault.

Q. Do you, Mr. Wiley? A. Not at every point.

Q. Calling your attention to the outline of the apex of the Senator Stewart Fraction vein as we claim it, do you or do you not believe that the top of that vein as far as developments may enable you to determine, is approximately at the point where the red line indicates its connection with the southerly side line of the Senator Stewart Fraction?

A. No, I don't think that represents the top, the ultimate top. It represents the top of this faulted section approximately, that is, except that this curve is made in a way for which I do not see any justification, based upon the workings and stopes on Exhibit 2.

Q. You do believe that that apex crosses the southerly side line of the Senator Stewart Fraction?

A. That portion of the vein beneath the Clancy fault, yes.

Q. And unless that vein is correlated by some actual development with a vein to the west, that is the same vein [945—900] you think that that would be the top of it, would it not?

A. I think it is the top of that section, but I think that it at one time extended further, and that that

(Testimony of Walter H. Wiley.)

faulted section is represented in the upper Stewart tunnel.

Q. Yes, but that faulted section is not being shown in the crosscut; there is not sufficient evidence to enable one positively to determine it as a part of the Stewart vein at the present day?

A. Not positively, but just as positively, I think, as we identify the Gray and Frank stopes as at one time parts of the same vein.

Q. Did you go into the stopes and other upraises as you go in and down northerly and northeasterly across, following the line of the red on Exhibit 3?

A. I did, into everything that was accessible, or seemed to be in ore.

Q. Are the tops of those stopes near the surface of the ground?

A. That is a comparative question. They are not near the surface, no.

Q. Well, how near? [946—901]

A. The nearest point is probably raise No. 2 west, something less than 100 feet from the surface.

Q. Do they disclose in your opinion such conditions of vein material as to indicate from their nature that they were approaching the top of the vein?

A. No, the only indication that they were approaching the top of the vein was at two points where I saw the Clancy fault, and as I stated, I don't know how much the throw was. I saw nothing whatever in the ground to give me any idea as to the extent of the throw.

Q. And without the throw, you could identify or

(Testimony of Walter H. Wiley.)

correlate the disconnected portions of the vein, can you? A. Certainly not.

Q. Now, these stopes as they rise on Plaintiff's Exhibit 2—I refer to the stope map, Plaintiff's Exhibit 2—the line of stopes I refer to as it goes up, that line of stopes underlying the course of the apex as traced on Exhibit 3 and Exhibit 2 would indicate about the course of the vein as we show it on Exhibit 3, would it not?

A. Yes, except that the stopes do not make that curve that is shown on Exhibit 3.

Q. The stopes over to the right-hand side? [947—902]

A. No, those down here would certainly but I could not myself use that place away down in the ground in determining where my apex is in an entirely different place in the vein.

Q. And you think for this portion you must look for the apex up here where you have described it in connection with the Apex drift, do you?

A. Yes, the apex of that portion.

Q. You think that is the apex?

A. Although there is a disconnection there before it reaches over to the fault.

Q. But this is the top of the vein nearest to the surface there at the Apex drift?

A. That is near the surface.

Q. You don't know whether this vein as it was originally constructed was in the form as shown here in this outline, a part of it a crescent, and then a cave in the course of the apex again, do you?

(Testimony of Walter H. Wiley.)

A. Oh, sure; without having seen that, that is one thing that I do know.

Q. You think it extended originally in a direction like that? [948—903]

A. It did extend substantially in the direction as shown by that portion of your apex.

Q. That is in a line more in a northwesterly direction, following substantially the course—a northerly and southerly course?

A. Not a northwesterly course; a direction substantially north 30 east.

Q. As my pointer indicated on the map?

A. Yes.

Q. And you think then that this portion was bent down that way, do you?

A. That portion is bent down.

Q. That is the portion in the Apex drift that you identify as the top of the vein, you think that was bent down in that form, do you?

A. Do you mean across the end line of your claim?

Q. Between W prime and W2 on the Apex drift it is north 30 east, isn't it?

A. I probably misunderstood you, because you traced with your pointer clear down and across the end line. Your vein is bent as it approaches the fault very materially.

Q. I mean this portion between W2 and W prime, it begins [949—904] to turn there before it reaches the fault?

A. Yes, it does; in most of the levels there is an abnormal bend.

(Testimony of Walter H. Wiley.)

Q. And it is 200 feet from the fault where it begins to turn, the 200 foot level, and in the stopes below that it begins to turn at a greater distance?

A. Yes, that is correct.

Q. And you think the Osborne fault came through there and caused that bend, or some other fault; I mean the portion of the apex that I indicate, that the Osborne fault made that bend?

A. I said I did not know; I did not know whether the Osborne fault made the bend or whether it was there before. The bend is there, however.

Q. And that bend had the effect of changing the course of the apex from north 30 east to a course very much more nearly east.

A. It threw it more nearly east for a short distance.

Q. And that when it approaches the Osborne fault you think the apex is lost, it has lost the original apex because it came in contact with the Osborne fault?

A. Why, certainly, it was dislocated. I heard someone [950—905] say that it was moved 6,000 feet, and cut off by the fault coming down under it.

Q. Yes, but if this vein was in that position, the position of the apex, at the time the Osborne fault cut it, this portion went down as much as that, didn't it; all the section that the Senator Stewart Fraction is in south of the Osborne fault would be in that portion of the plane of the mass that went down, wouldn't it?

A. That portion that was originally north of the fault, yes.

(Testimony of Walter H. Wiley.)

Q. And it would still maintain its relative relation at the top edge and the bottom edge and the *si* edges, although this vertical displacement was 6,000 feet, would it not, if all went down together? A. Yes.

Q. Outside of any question of crumpling and strain that would account for these different things, you have evidence in this vein in the body of the Stewart workings of an anticline, haven't you, as it goes down?

A. No, I haven't seen that. I think your anticline is broken by the fault.

Q. Isn't that a folding of the vein something like [951—906] this that comes up to a point and goes down on both sides? A. No, I haven't seen that.

Q. You did see a decided fold where there was much disturbance in the stratification, and where the vein seemed to be crumpled?

A. Do you refer to the Deering fault?

Q. No, sir, I refer to the flat place in the vein.

A. That does not make an anticline.

Q. No, I understand that flat place does not make an anticline, but aren't there places containing, not a perfect anticline, but showing a folding in the nature of an anticline?

A showing, a flattening and steepening and bending of the surface, making of it an irregular figure, the same as in the Osborne fault. [952—907]

Q. Without a break, if it is a break, you would call it a fault? A. Yes.

Q. And it is classified, then, under another vein. But those irregularities in a vein do not serve to

(Testimony of Walter H. Wiley.)

change the dip of a vein to the strike, do they?

A. They serve to locally change the dip, yes, sir.

Q. You may have anticline along a horizontal plane for some distance where the apex of your anticline would show the course of your vein, would it not?

A. You might assume such a condition.

Q. Is that not true in Leadville mines?

A. That might be true in many places.

Q. You do not think that because a point in an apex, one point, is higher, in a higher plane of elevation than another point in an apex, makes the lower point any the less an apex point if it is the top of the vein nearest the surface? A. Certainly not.

Q. Then it is not the declination from the Apex drift to the point where we claim the apex crosses the easterly side line of the Senator Stewart Fraction that affects [953—908] your judgment upon that question.

A. Not in the least. It is simply the fact that the vein is entirely cut off and gone, cut off on its edge.

Q. You admit that it is an edge, don't you?

A. It is an edge.

Q. You admit that in going from the workings upon that you go up to the top of it as it lies against the Osborne fault?

A. You can follow in a sinuous way, yes, sir.

Q. No, not in a sinuous way. I will ask you if the workings came up on a straight, regular, true dip at the points where this vein runs against the Osborne fault do not lead you upward before you get to the highest point of the vein against the fault?

(Testimony of Walter H. Wiley.)

A. They lead you up to your apex under the Clancy fault or to the other apex in the Siligo tunnel, but not to the apex under the Osborne fault.

Q. I call your attention to the cross-sections that were introduced here and identified of the plaintiff, and ask you if you found any mistakes in those cross-sections? A. Yes.

Q. You have. Where? [954—909]

A. In their representation of the vein.

Q. Well, what representation?

A. They magnify the size of the vein. They steepen the dip of the vein in many places.

Q. I call your attention to Plaintiff's Exhibit 9, cross-section V, and particularly to that portion of it that lies in contact with the Osborne fault. I will ask you if from the top portion in red, if a person was standing there and would take a round object and put it down, if he would not roll down (indicating), assuming there was nothing physically to interrupt it in its passage, roll down along the line that I have indicated with my pointer?

A. On your maps, sure; in the ground, no, it would not roll an inch.

Q. It would not roll an inch? A. No.

Q. You think, then, that there is not a difference at the point shown on section V—is not in a higher horizontal plane than the point shown at this part of this cross-section that I show you?

A. Yes, it is in a higher plane. [955—910]

Q. Well, then, wouldn't it roll down, Mr. Wiley?

(Testimony of Walter H. Wiley.)

A. No, because this is entirely wrong in its position.

Q. What do you mean by "this"?

A. This portion of the vein—the upper portion showing the highest point on this vein is more than fifty feet higher on this map than it is in the ground. This section V happens to be very close to the point where this sketch that I introduced was made, and the vein, instead of having such a steep inclination as that, has in its steepest place 19 degrees, and the apex, instead of being at the point as shown upon this section 5, is actually seen in the lower Stewart tunnel level itself.

Q. Does the vein not extend up above this working here? This working is in the vein, isn't it?

A. It is at the top of the Stewart tunnel level itself almost immediately on this cross-section 5.

Q. I will ask you if you do not have to go up higher than that to get to the very highest body of ore lying against the fault?

A. You do not, because you get the very highest body of ore right in the drift itself; it is easily to be seen; and above that is the fault. That sketch shows [956—911] it just about twenty feet of that point.

Q. Now, Mr. Wiley, you gave us a sketch that you prepared which has been identified here as Exhibit "K." I show you a photograph, as it happens, of the very same place, which I will ask to have identified, and I will ask you how you account for your giving a dip of 19 degrees when the actual dip is 36 at that point?

(Testimony of Walter H. Wiley.)

Mr. FOLSOM.—I object to the use of the photograph, it not having been proved that it was taken at that point.

Mr. DINES.—Here is one uncolored, if you object to the color. The color was given to show you the color was not made by the photograph—

The COURT.—The photographs have not been identified.

Mr. DINES.—I will have them identified.

Mr. FOLSOM.—His question assumed that they have been proven to have been taken at that point.

Mr. DINES.—I will state to the Court that they are so represented to me, and I will follow it up.

The WITNESS.—To save time, I will say they appear to me to be the same point, if that would be just the same.

Mr. FOLSOM.—All right.

The COURT.—If your counsel does not object, I shall [957—912] accept them.

Mr. FOLSOM.—That will be all right.

Mr. DINES.—I think before we identify these, you had better mark the tops.

Mr. GRAY.—Oh, no.

Mr. FOLSOM.—I understand there is a difference between your witnesses and ours as to what is the top.

Mr. GRAY.—Your witnesses have got it turned around.

Mr. DINES.—No, the top is shown here.

The said photographs were thereupon marked Plaintiff's Exhibits 18 and 19 for Identification.

(Testimony of Walter H. Wiley.)

Mr. DINES.—Q. I show you Plaintiff's Exhibits 18 and 19 as they are identified, and ask you if you are able to identify those photographs as photographs of the same place that you took Exhibit "K" from?

A. I think those are on the same point except that the photographs *does* not show but a portion, probably about one-half in length, of the amount shown on the sketch. The photograph does not show the full length.

Q. It would be more than half, would it not?

A. Slightly over, possibly. [958—913]

Q. Well, are you able to say whether or not those are the same representations of the same place that is covered by your Exhibit "K"; if not, I prefer not to have you identify them?

A. They are correct representations except that the color often distorts the position of an ore body, but they show substantially the conditions as they are there in the ground, and except for the fact that the top of the ore body which is shown in my sketch is behind the black shaded portion and not shown at all upon the photographs, they show the same body of black ore carrying considerable galena which is shown upon the sketch. The dip substantially agrees upon the photograph on the under side. The shading in red has been carried a little higher into the white material. There is a great difference between the black material on the ground and the quartzite or black material of the ore, and the shading in red has been carried on the photograph higher there than the ore really goes, unless it is due to a

(Testimony of Walter H. Wiley.)

distortion in the photograph; it may be; it looks much steeper than it really is on the ground. The dips as given on the sketch are as actually taken on the ore in the crosscut. [959—914]

The COURT.—They can be admitted under the admission of counsel.

Mr. DINES.—Well, your Honor, I will introduce—as he raises the question of some distortion, I think I had better wait.

The WITNESS.—I do not mean to say exactly distortion, except—

Q. You mean they sometimes distort—you mean the question of perspective that affects the angle at which you take it?

A. That is all; it appears different from the photograph. Unless you have got your camera right square with the face, if you took a view slanting, the photograph could easily mislead.

Q. Mr. Wiley, you say you can make a dip by a picture steeper than it actually is. You can make that flatter, but you cannot make it steeper, to save your life, can you? A. Yes, sir.

Q. How can you?

A. If your camera is not square with the view taken.

Q. That way, yes, by not having your camera level?

A. Whether your camera is level or not, it don't make [960—915] any difference. For instance, in photographing the face of the drift here four or five feet from the face, your camera here, and the

(Testimony of Walter H. Wiley.)

portion over there is ten feet away, you will have a distortion; that is what I mean.

Q. But you would not have an increased dip, would you?

A. You would have a change, it might be one way or the other, yes.

Q. Are you sure about that? A. Yes, sir.

Q. I will ask you to take the dip as shown on this photograph, Exhibit 19, and what dip is given to the vein there.

A. The vein as shown in this photograph is impossible to distinguish. It looks to me if I had not seen the place, I would be utterly unable from this uncolored photograph to say anything except that we had what appeared to be a mass of rock, or ore with white portions through it, a considerably lighter area in the upper right-hand corner. I would be inclined to think that the material in the bottom was ore the same as the material higher up, if it was right as photographed, of ore, whereas I know as a matter of fact that the material in the bottom which [961—916] looks precisely like that above is quartzite and not ore. A great deal of that may be due also to the flash which makes some parts dark, as for instance, the shadow that a post will make—

Q. My question was simply was to try and see if you can get the dip; if you cannot get it, you can say so.

A. The dip of the most markedly shaded portion, through here, which might be assumed to be the dip of the ore body, is about—taking it from the edge of

(Testimony of Walter H. Wiley.)

the paper—twenty-six degrees. The dip of the lower portion which has a distinct, apparent line of separation from that below, has a dip as measured on the edge of the paper of eleven degrees. The dip of the portion which is a separation apparent between the white material above and the ore beneath has a dip of about thirty-two degrees. So you can get most any dip as measured on those places.

Q. Are the ore bodies in the Ontario part of the same vein that is disclosed in the workings of the Senator Stewart Fraction?

A. I think they were at one time, yes. They are faulted to-day.

Q. Can they not now be connected on ore and is there [962—917] not sufficient development work to correlate the bodies of ore in the Ontario with the workings on the vein in the Senator Stewart Fraction as the same vein?

A. Yes, that is, you can follow from the Frank stope up on one segment of the vein and from the Gray stope on another.

Q. What is your best judgment, are they the same vein or different veins?

A. I think they are faulted sections of what was once the same vein.

Q. Don't you think they are a part as you follow upon ore from one to the other of the same vein?

A. I cannot follow on ore from one to the other to-day. I have described on the model that there was a flat portion through which I have not been, and did not know what was in there, and that was

(Testimony of Walter H. Wiley.)

the only possible connecting link that is shown upon Exhibit 2, the stope map; there is only one place shown on that map, and that is in the middle, where there is a little isthmus connecting the two red upraises.

Q. And you have not been up in there?

A. You cannot get through there to-day. [963—918]

Q. Assuming that to be continuous on ore, would it be identified then, under that assumption, as a part of one and the same vein?

A. Not necessarily, because there might be two faulted sections which had faulted opposite each other.

Q. Now, Mr. Wiley, you have those veins or vein developed there, you have been all over it, you have an opinion about it; under the facts that you stated, faulted sections, are you able to identify the two sections?

A. Not absolutely, but I believe at one time they were parts of the same vein, that is, as far as I can go.

Q. They are parts of the same vein, are they not, as a geological matter, even though they are interrupted by the fault, if you can correlate and identify them.

A. They are separate to-day, if they were once the same vein.

Q. I say, in a geological sense, they are considered the same vein if you can correlate them, the two parts, the parts separated can be correlated, they are

(Testimony of Walter H. Wiley.)

still the same vein, aren't they?

A. I would not want to be more specific than saying once they were the same vein, but they have been separated [964—919] by faulting, that describes all I know about them.

Q. You, of course, do not pretend to be able to tell how long this cutting of the Osborne fault occurred? A. Hardly.

Q. You know at the time these locations were made, at least, that they were substantially as they are now, don't you? A. Yes, sir.

Mr. DINES.—I think that is all.

Redirect Examination.

(By Mr. FOLSOM.)

Mr. FOLSOM.—I offer the model now in evidence.

Mr. DINES.—We object to the introduction of the model in evidence for the reason that up to the present state of the record it is admittedly inaccurate, no offers made to make the correction; the witness has conceded that there are portions of it in the vein that are not colored there in red; he pointed out one or two himself, and there are others that we claim as such, and therefore we shall object on the ground that the model has not been proven.

The COURT.—The objection will be overruled.
[965—920]

The model will be admitted.

The said model was thereupon marked Defendants' Exhibit "L," admitted.

Mr. FOLSOM.—Q. Mr. Wiley, you were asked about some ore in the 200 crosscut. Is that the same

(Testimony of Walter H. Wiley.)

ore that was referred to by Mr. Winchell as a part of No. 2 vein? A. I think so.

Q. That is the vein in the northwest corner of the Stewart? A. Yes, sir.

Q. Is the one that he classed as the No. 2 vein?

A. Yes, sir.

Q. I wish you would point out on Plaintiff's Exhibit 1 the two raises in which the fault material you said was disclosed about which you were asked in connection with that photograph, that first photograph, and you answered by saying that it was disclosed—

A. (Interrupting.) Plaintiff's Exhibit No. 1 shows one raise in a drift; there is another raise up there fifty-five feet which is not shown at all on this exhibit, but they both extend upwards upon the fault from the drift running easterly from the main Fir tunnel. [966—921]

Q. Did you state that an angle was formed of 40 degrees at any time?

A. I don't remember stating any such—

Mr. GRAY.—No, Mr. Wiley did not. Mr. Dines in giving the course of the vein assumed a vein of thirty degrees.

Mr. FOLSOM.—There was one other question that I should have asked on direct about the plaintiff's model.

Q. Have you examined that model, Plaintiff's Exhibit 15-A? A. Yes, sir.

Q. Does that correctly represent what it purports to represent to the eye?

(Testimony of Walter H. Wiley.)

A. I think it is correct as regards the location of the workings so far as I know, but it is not correct in the appearance it has to the eye in that the vein as painted red upon the sheets of glass is wider than it is on the ground, and especially the apex against the fault is carried up very much higher than it exists in the ground as shown, for instance, at this one point which corresponds about with section 8 on this model, and it magnifies the apparent dip in that instead of being built as a box usually is with square sides the ends are [967—922] showed in the direction of the dip as shown, is along a steeper line of dip than they would have been if made in the direction of the Stewart Fraction end line.

Mr. FOLSOM.—That is all.

Recross-examination.

(By Mr. DINES.)

Q. Mr. Wiley, is it not a fact that whatever way you take cross-sections you have an assembly of cross-sections, that the general result to the eye is the same whether the cross-sections are on one place or another, if you get enough grouping of them.

A. By no means. If it had been they would have been made square with the box, if that were true.

Q. Why do you think that? What right have you to cast that insinuation, sir?

A. I am not insinuating, except that I never before saw a box built on a skew in that way; there is no reason it should not be, but I do state as a fact that the line as selected shows the sections to have a steeper dip both individually and collectively than

(Testimony of Walter H. Wiley.)

if the sections were taken in the direction of the end line. [968—923]

Q. The sections in this case are taken, you understand, at right angles to the Osborne fault, vertical planes at right angles to the Osborne fault. Is it not true—

Mr. FOLSOM.—I think you are mistaken in that respect. I think only as to a small portion of the Osborne fault.

Mr. DINES.—Every one of them are taken at right angles, true cross-sections at right angles to the Osborne fault.

A. It shows for itself that the Osborne fault runs diagonally with the box, so that is, of course, shown right on the face of it that that is not entirely correct.

Q. But it is true that this model, I will tell you, that these cross-sections are taken at right angles to the Osborne fault. Now, will you tell me why, when the matter we are comparing is the vein with the Osborne fault, that a plane at right angles to the Osborne fault distorts it when a plane oblique to the Osborne fault would not distort it, aren't you just exactly wrong and is not the reverse true?

A. The correct representation of a vein would be of course a cross-section at right angles to its real dip. [969—924]

Q. Mr. Wiley, will you answer my question. I tell you that that model is serving to show the relation between the vein and the Osborne fault as it lies up against it. You have stated that that would distort

(Testimony of Walter H. Wiley.)

it, would show a distorted view of that relation. I say, if the planes are at right angles to the Osborne fault, the planes of the veins, is it not true that they will distort less than they would if they extended obliquely to the Osborne fault?

A. If the object was to show the dip of the Osborne fault, that might be partially true. If the object was to show the dip of the vein, it is utterly wrong.

Q. The object is to show the relation between the vein and the Osborne fault. Is it not true that to do that it should be at right angles to the plane of the Osborne fault? A. No, it is not.

Q. And it is not true—that is your idea of it?

A. It is.

Q. You frequently disagree with other engineers and with lawyers as well?

A. Sometimes. [970—925]

Mr. DINES.—That is all.

Mr. FOLSOM.—Q. The counsel referred a little bit ago to your Ontario case. The Court found that that was a vein, did it not?

A. I don't remember just the findings.

Mr. FOLSOM.—I do not know whether these cross-sections have been received in evidence or not, but I will ask that the cross-sections be admitted and the drawings also.

The COURT.—They will be admitted.

Thereupon an adjournment was taken until to-morrow morning, Tuesday, January 14, 1913, at

10:00 o'clock A. M. [971—926]

Tuesday, January 14, 1913, 10:00 o'clock A. M.

Trial resumed.

[**Testimony of Oscar H. Hershey, for Defendants.**]

OSCAR H. HERSHEY, a witness called on behalf of the defendant, being first duly sworn, testified as follows:

Direct Examination.

(By Mr. FOLSOM.)

Q. State your full name to the reporter.

A. Oscar H. Hershey.

Q. Where do you reside?

A. Residence, Kellogg, Idaho.

Q. What is your occupation?

A. I am a mining geologist by profession.

Q. How long have you followed the business of a mining geologist? A. About fifteen years.

Q. What experience have you had in studying mines for the purposes of further development and for the purpose of determining the question of desirability of purchasing the same and in what countries?

A. The first few years of that fifteen years I spent [972—927] in prospecting, and after that for a number of years I was engaged in making mine examinations with the object of determining whether they could be recommended for purchase. The last four years has been largely in the line of special geological studies of important mines.

Q. What mines have you had occasion to study in the last few years?

(Testimony of Oscar H. Hershey.)

A. A few years ago I made a study of the mines of Douglas Island, the Alaska Treadwell, the Ready Bullion, and the Mexican mine.

Q. For whom did you make that study?

A. That was made for the Alaska Treadwell, Alaska United and Alaska Mexican Company.

Q. Now go on.

A. In October of 1908 I was engaged by the Bunker Hill & Sullivan Mining & Concentrating Company to make a geological study of the Wardner district in connection with the litigation which that company had with the Federal Company. When that case was settled in 1910 I became the consulting geologist for the Bunker Hill & Sullivan Mining & Concentrating Company, and I have held that position ever since.

[973—928]

Q. What other mines have you had occasion to study?

A. My mining work has extended into practically all the western States and also in Nicaragua and Isthmus of Panama.

Q. Besides Alaska?

A. Yes, sir, besides Alaska.

Q. Have you ever made any contributions to the literature on the subject of geology?

A. Yes, I have written quite a number of short papers that were published in geological magazines and other publications; I have not counted them up recently, but I should say that they would amount to at least fifty.

Q. How much time have you spent altogether in

(Testimony of Oscar H. Hershey.)

studying the Yreka mining district in this county?

A. The larger part of four years.

Q. I will ask if you are familiar with the Ontario ore bodies and the ore bodies and veins in the Stewart Fraction property? A. I am.

Q. Describe the ore bodies in the Ontario workings, their strike and dip.

A. In the Ontario mine there are three ore bodies [974—929] that have—

Q. I am referring now to the Silver King tunnel level only.

A. Yes, I supposed you were. There are three ore bodies that have been mined and that are known respectively as the Gray, the May and the Frank. The Gray portion has a length on the Silver King tunnel level of about 320 feet. The course is about north 30 east. This ore body toward the east becomes very thin, at the most easternmost exposure of that level it has not been mined, it is far below a commercial grade, but further west stopes have been carried up on that ore body at an average angle of probably forty-five degrees. That ore body was found cut off toward the southwest by a fault whose course is northerly and southerly and dip westerly from twenty to twenty-five degrees. Beyond that fault the May ore body was found by crosscutting to the right, by treating the fault as a normal fault, and crosscutting to the right. That ore body has been stoped to a small extent and in carrying the stopes up on that ore body it was found that the throw of that fault became less or at any rate the

(Testimony of Oscar H. Hershey.)

Gray and the May ore bodies came together so that the fault probably has no [975—930] importance higher up. That ore body was found cut off on the southwest by another fault whose course is about north 40 west and dip southwesterly about 35 degrees. By crosscutting to the right after passing that fault, that is, by treating that fault as a normal fault, the Frank ore body was found. The Frank ore body has been driven on for several hundred feet, I don't remember the exact distance. The course of it is about north forty degrees east, and stopes have been carried up on that ore body at an average angle of probably fifty degrees, that is, these stopes have been carried up in a northwesterly direction, making the dip probably degrees toward the southeast.

Q. I ask you just right there one question. On Plaintiff's Exhibit 1 you notice a drift which is named the Frank drift, which extends southerly on the Ontario south side line into Bunker Hill ground, the Silver Casket. I will ask you if the face of that drift is still in ore.

A. Yes, sir, the vein is exposed at the face of that drift, and there is very fair ore there.

Q. That is commercial ore, is it not?

A. Yes, sir. [976—931]

Q. I will ask you if you have ever had occasion to study the works of the Stewart mine? A. I have.

Q. And the veins in there? A. I have.

Q. What is the course of the Stewart vein?

A. The average strike, the general course of the

(Testimony of Oscar H. Hershey.)

Senator Stewart vein lies between north 30 east and north 40 east.

Q. I will ask you what the general downward course of the Stewart vein is?

A. You refer to the general dip?

Q. General dip, yes, average dip.

A. The general dip is southeasterly. It would be at a right angle to the course that I have given as the general course of the vein.

Q. Where is the top or apex of the ore bodies in the Ontario claim above the Silver King tunnel level?

A. I am unable to give a very definite answer to that question, because I do not believe that the portion of the apex corresponding to those ore bodies is exposed. It would be found, however, by going up on the dip in a [977—932] northwesterly direction; it would probably lie partly under the Senator Stewart claim, perhaps a part under the Silver Casket.

Q. I will ask you what the course of the Stewart vein below the Clancy fault is, approximately?

A. Do you mean immediately below the Clancy fault?

Q. Yes, I mean on the old Senator Stewart tunnel level, or old Stewart tunnel level.

A. That would be about north forty east.

Q. Have you ever examined the upper works in the Stewart mine? A. I have.

Q. What is disclosed in those upper works?

A. In the upper Stewart tunnel the vein which I believe to represent the Senator Stewart vein cuts at

(Testimony of Oscar H. Hershey.)

a point about 175 feet from the mouth of the tunnel. The vein there is very thin, as there is only a few inches of quartz; there is some oxidized lead minerals, has a small gouge, and dips southeastward about 65 degrees; thence the upper Stewart tunnel is in the end of that crosscut until a point near survey station L5434.

Q. Just take a pointer and point them out on the model also. [978—933]

A. From about the point which I have mentioned a drift is extended in a northeasterly or rather a more northerly direction and for several hundred feet, and the vein is exposed in that drift which I believe a portion of the Senator Stewart vein because of its course, its dip to the southeastward, and its general character. The model shows red indicating the extension of that vein in a southerly direction to where it is cut off by a fault which has been referred to in this case as the Ontario fault; also referred to by Dr. Lawson as the lower Cate fault. That portion of the vein is not very well exposed at the present day but in the past four years the timbers at times have not been—that is, ground has caved, the timbers have caved away and exposed pieces of that vein along that line.

Q. I will ask you if you have examined the end of the Stewart vein which lies against the Osborne fault, what is called the Osborne fault which has been referred to as the Osborne fault here? A. I have.

Q. I will ask you if that end of the vein in your

(Testimony of Oscar H. Hershey.)

opinion constitutes a part of the top or apex on a vein? [979—934]

A. It does not; it is part of the bottom edge of the vein.

Q. You prepared a cross-section. Is this your cross-section? A. Yes, sir.

Q. I will have this marked as an exhibit.

The said cross-section was thereupon marked Defendants' Exhibit "M," for Identification.

Q. I will hand you Exhibit "M" for Identification and ask you to put it up there on the wall. I will ask who prepared that cross-section?

A. The cross-section was prepared under my direction.

Q. What does it purport to represent?

A. The red line is to represent the Senator Stewart vein.

Q. Through what lines upon the map Defendants' Exhibit "B," I believe it is, is that taken?

A. The section is drawn through the line 1-1 prime in Exhibit "B," in a course about, or I believe exactly south 50 east, being the direction of the general dip of the vein. [980—935]

Q. I will ask you if that cross-section is correct so far as you are able to make it? A. It is.

Mr. FOLSOM.—I will offer that in evidence and ask that it be admitted as Defendants' Exhibit "M."

The COURT.—It will be admitted.

Thereupon the said cross-section was received in evidence and marked Defendants' Exhibit "M."

Mr. FOLSOM.—Q. Will you indicate on the

(Testimony of Oscar H. Hershey.)

model that of that cross-section as nearly as you can?

A. The line of that cross-section passes through the northeasterly edge of the vein on the 300 foot level, and through the Siligo tunnel a short distance west of the crosscut.

Q. I will ask you what the blue on the cross-section is supposed to represent?

A. The upper blue line represents the Clancy fault. The blue line which connects, D-5 E, or rather, I should say the lower Stewart tunnel level with the lower end of the section, represents the fault which cuts off the vein on the northeast, the fault that has been referred to in [981—936] this case as the Osborne fault.

Q. What is the dotted blue line?

A. The dotted blue line indicates a supposed extension of the fault toward the northwest.

Q. What is the red or pink? I may be color blind.

A. This color?

Q. Yes, what is that supposed to represent?

A. That represents the vein.

Mr. FOLSOM.—Take the witness.

Cross-examination.

(By Mr. GUNN.)

Q. Mr. Hershey, what do you understand by the apex of a vein?

A. By the apex of a vein I understand the top edge of the vein.

Q. Top edge of a vein? A. Yes, sir.

Q. What do you understand by strike?

A. By strike I understand the course of the vein

(Testimony of Oscar H. Hershey.)

on a horizontal line at any given point.

Q. And what do you understand by dip? [982—937]

A. By dip I understand the inclination of the vein on a vertical plane drawn at a right angle to the strike.

Q. Could you put a sheet of paper on the board there and draw a diagram by which you can illustrate the top edge of a vein, the apex and dip and strike?

A. I wish to draw a circle, although it probably won't be an exact circle; it is near enough for the purpose of illustration. Through that circle I will draw a horizontal line which is supposed to divide that line into two equal portions, an upper portion and a lower portion. Now, if that circle represented a vein, the top edge of that vein would be all portions of it along the line A, B and C. The horizontal line indicates the strike of the vein, the general strike of the vein.

Q. And the dip would be at right angles to the strike?

A. Yes, sir, the dip would be indicated by a perpendicular line drawn from the center of the horizontal line to the center of the lower segment of the circle.

Q. You have examined the workings quite thoroughly in the Senator Stewart Fraction claim?

A. Yes, sir.

Q. And are familiar with what is shown in those workings? [983—938]

A. Yes, sir; I am as far as they are accessible to—

(Testimony of Oscar H. Hershey.)

day or have been accessible to me within the last four years.

Q. Referring to the Defendants' Exhibit "B" I will ask you if the vein is disclosed in this working marked on this map D 5 W and D 5 east?

A. It was disclosed there at the time that I passed through those workings several years ago.

Q. Does the working follow the course of the vein?

A. I remember the D 5 west from the crosscut to near the point where a crosscut turns to the right from the end of the D 5 west drift that the vein was exposed continuously.

Q. How about the extension in the other direction from this Deering crosscut through the drift marked D 5 east?

A. I believe I should modify my answer in which I stated that I had been through all of those workings for there is a section there that I never was through. I was a short distance east of the crosscut, I don't remember just how far. The vein was still exposed in the [984—939] face at the time I was there.

Q. Have you recently been in the drift which extends out in an easterly direction to its face?

A. I have been in the drift from a point probably 20 or 30 feet west from survey station L 6353 to the extreme eastern end of the drift.

Q. Is that drift for that distance along the vein or in the vein?

A. There is a little uncertainty in my mind as to how far the vein extends there. The vein usually consists of a fissure proper, a vein proper, which con-

(Testimony of Oscar H. Hershey.)

sists largely of galena and quartz that is deposited in an open fissure, I do not mean to say that the fissure remained up to a width of several feet at any one time, but there was probably a continual opening of that fissure and the deposition of quartz and galena at the same time, so that we have nearly every place in the vein a true fissure vein, and outside of that in a zone that may be thirty or forty feet wide, perhaps a little wider in places, there is more or less galena, and it seemed not continuous, but scattered through a brecciated mass of quartzite, and it seems there is also considerable replacement quartzite [985—940] within that zone. I do not doubt that a thousand thin specimens might be taken from the vein in places that would show replacement by the galena, but the most prominent feature about the vein is that central streak of quartz and galena which represents the original fissure. Now, that original streak, I should say may terminate near station L 5361, but over that streak there may be, although, the width of it is not exposed at that point there may be a considerable width of mineralized quartzite which properly belongs to the vein. Now, the hanging-wall side of that is not exposed at that point at the present time and never has been as far as I know, and I am unable to say how far easterly along that drift the hanging-wall portion of the vein may extend, so I cannot say just where the vein is entirely cut off by the fault. My impression is that the hanging-wall side of it may extend as far as the top of raise 218 east and possibly a little farther.

(Testimony of Oscar H. Hershey.)

Q. And for the distance that it does extend this working would be along the general course of the vein.

A. No, the portion we have been discussing last is along an abnormally bent portion of the vein, a portion that has been bent by the action of the forces which produced [986—941] the fault. I should not call that the general course of the vein by any means.

Q. But for the distance that this working is shown in the direction of my pencil it is along the course of the vein abnormally bent as you have described?

A. I would not like to say that, because I have said the hanging-wall side of the vein is not exposed along there and that drift may be going obliquely through the vein as far as I know.

Q. Now, take upon levels below the one we are discussing, and I will ask you if the vein is disclosed in that level. [987—942]

Q. The 100 foot level?

A. It is, but I am unable to give the exact distance or the exact points between which it is exposed. Several years ago I went down raise 109 east and found the vein extending continuously along that raise and stopes being carried out both sides of the raise, and I went down to the level, to the drift 105 east, and I went northeasterly and southwesterly along that drift, and my impression was that the vein was not absolutely continuously exposed, but it was exposed at so many points that it was evident the drift was practically following the vein. That is, I should

(Testimony of Oscar H. Hershey.)

say that it would be in drift No. 105 west for some distance from a crosscut which leads to the Stewart shaft No. 1, and in going in that direction the vein became very thin and became badly broken up by little faults, and finally it could not be followed any further.

Q. Is the level beneath the surface of the Senator Stewart Fraction claim along the general course of the vein?

A. Do you refer to the entire level or a portion of the level?

Q. I am speaking of the level below the surface of the Senator Stewart Fraction claim which is below the vein. [988—943]

A. No, a large part of it is in the abnormal bend abnormally bent up portion along the fault.

Q. And it follows the general course of the abnormal condition of the vein caused by the bend, does it not? A. The eastern portion of it.

Q. The northeastern portion.

A. You mean the general course of the bent portion?

Q. Yes.

A. I suppose it does; I have not been through all of that.

Q. And is the vein exposed in the face of that drift?

A. I have not been able to get to the face of drift No. 105 east, because from the raise No. 218 east the drift is caved on both sides, and I have not been able to get out of that raise.

(Testimony of Oscar H. Hershey.)

Q. And so you are not able to locate definitely the termination of the vein in that drift?

A. No, sir, I am not. There is galena in the vicinity of the raise, but I don't know whether it extends any further east or not.

Q. Now, the next level, the 200 foot level, is it on the vein; does it follow the general course of the vein [989—944] below the surface of the Senator Stewart Fraction?

A. I don't believe I exactly understand your question. I gave the general course of the vein as between north 30 east and north 40 east. Do you mean to ask me whether that portion of the 200 level which is under the surface of the Senator Stewart Fraction claim conforms with the general course that I gave?

Q. No, I am not asking you that at all. We have on this map what purports to be a picture of that 200 level, have we not? A. Yes.

Q. What I ask you is whether or not that portion of the level shown in the picture as being below the surface of the Senator Stewart Fraction claim is, as you have observed it, along the general course of the vein to the extent mentioned?

A. You mean whether it follows the vein in a general way?

Q. Yes.

A. Well, I understand that now. Yes, it follows the vein in a general way.

Q. And is the same true with reference to the 300 foot [990—945] level as far as the Senator Stewart Fraction is concerned?

(Testimony of Oscar H. Hershey.)

A. Yes, it is.

Q. Now, you are familiar with what is referred to on your Exhibit "B" as the Siligo tunnel?

A. I am.

Q. What is exposed and shown in that Siligo tunnel?

A. Near the southwestern end of the Siligo tunnel there is a gouge exposed which has been referred to in this case as the Clancy fault, and I believe it represents the Clancy fault. Northeastward from that gouge there is a series of small gouges extending along the tunnel, and of these gouges, the upper one, appears to me to have a position which makes it practically the footwall of the vein in that tunnel; that is to say, all the galena that I observed and all the lead minerals of any kind that I observed were about that gouge. Now that gouge lies on the highest part of the southerly side of the drift, and appears in the wall near the roof, and in the crosscut which leads southerly from 5082 the gouge is probably three or four feet; that is, at the floor of the crosscut it is probably three or four feet from the drift. That gouge appears to go out into the main drift, and be cut off by a stronger fault gouge near the point [991—946] L5428.

Q. And where is L5428 located with reference to the point marked W prime on Plaintiff's Exhibit 1?

A. It is located near survey station 2502, at this point.

Q. Then, do I understand you to say that there is a vein exposed along this working referred to on

(Testimony of Oscar H. Hershey.)

Plaintiff's Exhibit 1 as the Apex drift?

A. No, I say that a gouge that appears to me to represent the footwall of the vein is exposed at a number of places near the route along that drift in such a way as to indicate that the drift in general is under the vein, but the vein is exposed in a few places along the drift.

Q. What is exposed in the upraise from that drift?

A. In the upraise from that drift the gouge as I have described as probably constituting the footwall of the vein, appears to go into the route of the raise from one side or from the bottom of the raise, and beyond that the raise is following a gouge that represents a small fault, a fault perhaps of comparatively small value, of not much structural importance, which is distinctly under the vein.

Q. Is there any evidence of stoping in the immediate vicinity below that Apex drift? [992—947]

A. There is.

Q. What evidence do you find there?

A. One can go down a raise from about station L5232 on Defendant's Exhibit "B," into the stopes.

Q. Well, where is the apex of that section of the vein with reference to this Siligo tunnel or the Apex drift as it is called on Plaintiff's Exhibit 1?

A. I don't know; I don't know that the apex is exposed there.

Q. Is the apex exposed in the raise?

A. I am not prepared to say that there is an apex there at all exposed; I suppose there is for a short distance what might be considered a portion of the

(Testimony of Oscar H. Hershey.)

vein, but I am not prepared to state positively.

Q. If the vein extends up through the stoping immediately below this Siligo tunnel, and the raise extends to the surface, the apex of that vein must be somewhere between the surface and the stopes, must it not?

A. Well, my difficulty arises from the fact of not having been able to follow the vein up to the bottom of the surface debris, I do not know but that it may be cut off by a fault before it reaches that point and there may [993—948] be a portion of the vein on the north side of that fault, so situated that it would make it impossible for any portion of the true apex of the vein to be extended to the Siligo tunnel. I am willing to concede that it is probable that there is a portion of the apex of the vein in the vicinity of the Siligo tunnel, but I don't want to be put in the position of having committed myself, because I don't know.

Q. Will you indicate on that map where, in your opinion, that apex would extend as shown by those workings? A. What apex?

Q. The apex that you say you believe is in the Apex drift and in the raise above it.

A. I think it might have a position somewhat as indicated by the position of the blue line XY on Defendants' Exhibit "B," but I do not commit myself; I do not say it is there, but I say it is probably there.

Q. Now, in taking the dip of the vein, you say you take it at right angles to the strike?

A. At right angles to the strike, yes.

(Testimony of Oscar H. Hershey.)

Q. As near as possible?

A. Exactly at right angles to the strike. Anything that varies from right angles to the strike is not the dip [994—949] of the vein.

Q. Will you indicate by your pencil the dip of this vein from this apex that you have drawn through those workings?

A. You refer to the local dip at that particular point?

Q. Yes, through this section here, within the Senator Stewart Fraction claim.

A. Without regard to the general dip of the vein?

Q. Without regard to the general dip of the vein; just take the true dip from this apex as disclosed.

A. I should not like to use the term "true dip" there. The term "true dip" is generally applied to the dip of the vein in general. I am willing to give the direction of the local dip of that particular point of that abnormal bent portion of the vein.

Q. What would be the dip as you would mark it on that map; take it from your point here, the most easterly portion of the apex?

A. I have marked it with an arrow pointing south.

Mr. GUNN.—Will counsel object to my drawing a line through there?

Mr. FOLSOM.—Why not make it on your own map? [995—950]

Mr. GUNN.—Very well. I will make it on our own map.

Q. Will you mark a line on Plaintiff's Exhibit 1 in the course of the dip you have given, and then

(Testimony of Oscar H. Hershey.)

draw a line through these workings?

A. Now, in drawing that line, so as not to be misunderstood, I would like to make an explanation, and I would like to draw a sketch.

Q. Mark it "line drawn by Mr. Hershey," so that we can identify it.

A. Line A. B. I would like to make an explanation in regard to that line in the form of a sketch.

Mr. DINES.—I submit, your Honor, that it is not a question of an explanation.

Mr. FOLSOM.—It does require explanation.

Mr. DINES.—I don't think the witness has a right on every line he draws in reply to a question of that kind, to explain. It is on some questions that he cannot answer yes or no that he has a right to explain, and we wish to raise that question. If they wish that in rebuttal, they can get it.

The COURT.—I will sustain the objection. I don't think that answer requires an explanation, a mathematical line. If you desire it in rebuttal, you can have it. [996—951]

Q. Now, you have drawn a cross-section here, Mr. Hershey, which I understand is taken through the line shown on this map as 1-1 prime? A. Yes.

Q. Where is the termination on the edge of the vein on the 200 foot level shown with reference to your cross-section 1-1 prime, as you have observed it in the ground?

A. It is about 30 feet northeast of the line of section.

Q. And where is it exposed in this working?

(Testimony of Oscar H. Hershey.)

A. Do you speak of the end of the vein, the bottom end of the vein?

Q. The edge of the vein where it is cut off by the fault?

A. The edge of the vein where it is cut off by the fault is about 10 feet easterly from survey station L-5395 on Defendants' Exhibit "B."

Q. Will you put a little dot on the map at that point? A. Yes.

Q. Where next is the edge of the vein exposed as you pass northwesterly?

A. I am not certain that it is exposed anywhere northwesterly [997—952] from that point; that is, the absolute extreme limit of the vein in a north-east direction.

Q. Where is the limit of the vein material or ore that you have seen exposed in the northwesterly direction from the point which you have designated?

A. On the 100 foot level the most northeasterly ore that I have seen was in raise 218 east. On the Stewart tunnel level the most northeasterly commercial ore that I have seen is about midway between stations L5361 and L5362, but I have seen along the right-hand wall of that drift as far as the top 218 east, and in the upper side of that raise—I have seen material which is more or less broken quartzite and a great deal of limonite, and a little quartz, which I think probably is a little portion of the hanging or upper side of the vein.

Q. Now, what is the general course of the line of the edge of the vein as it comes against the fault

(Testimony of Oscar H. Hershey.)

from the lower Stewart level down to the 300?

A. I am unable to give you that line definitely, as I could not select the point on the lower Stewart tunnel level from which to determine that line. I can select a point there, being the most easterly point at which I have [998—953] seen anything that appears to me to be vein matter.

Q. Very well, take that point then. I understand that you do not say that that would be the termination of the vein, but that it is the most easterly point that you have observed—

A. Observed vein matter, that is, what I think probably is vein matter; it is highly oxidized, and there is no galena present in it.

Q. Yes—

A. It would be substantially north 50 west.

Q. Will you just put a line on this map, Plaintiff's Exhibit 1, a blue line extending through approximately the point that you have designated, and showing the course?

Mr. FOLSOM.—The course of the vein at that point?

Mr. GUNN.—The course of the edge of the fault as he has observed it.

Q. Just draw the line and mark it.

A. The line CD. On Plaintiff's Exhibit No. 1 the blue line indicated by the blue letters C and D is a line connecting the point on the lower Stewart tunnel level which is the most easterly point at which I have seen what I consider probably vein matter, the portion of the hanging-wall section of the vein,

(Testimony of Oscar H. Hershey.)

but not necessarily the absolute limit of the vein on that level—with a [999—954] point on the 200 foot level which is the most northeasterly point at which I have seen what I would identify as a portion of the Senator Stewart vein.

Q. And what is the course of that line that you have taken?

A. The course is about north 50 west.

Q. Now, I notice that you refer to what you call the abnormal condition of the vein as shown in these most northeasterly workings? A. Yes.

Q. A bending up of the vein as you term it, is it not?

A. Well, yes; I have referred to it as a bending up, but whether the actual movement was in an upward direction, or merely in a direction to the right I am unable to say, but the general effect of it would be the same as if it were bent up, the vein.

Q. Just step over to the model a moment. If you should assume that this vein laid up along the line of the fault until the edge of the vein was on a level with the apex that you have described in the Siligo tunnel, would you call this edge an apex? [1000—955]

A. I don't believe that I quite understand your question.

Q. Let us assume that the vein extends up along the fault and lies along the fault, and that the edge of the vein is on a level with the top or apex of the vein as shown in the Siligo tunnel, would you call this edge of the vein extended and projected as you

(Testimony of Oscar H. Hershey.)

have projected it, the apex of the vein?

A. You mean that the edge between, say, a point on the Fir tunnel level, and one on the lower Stewart tunnel level, if it be projected up along the fault in a direct line to the point where it reaches the Siligo tunnel level?

Q. Let us assume that there is a vein extending up from this edge that you have described along the fault, and that the edge of that vein does lie against that fault in a horizontal plane with the apex of the vein in the Siligo tunnel, would you call that edge of the vein an apex?

Mr. FOLSOM.—If you confine your question to his opinion as a geologist, and not as a matter of law, we will not object.

Mr. GUNN.—I am confining it to his understanding of an apex.

Mr. FOLSOM.—That is all right. [1001—956]

A. The portion of that edge that you have on the level of the Siligo tunnel I would consider apex, provided that the line is to be determined by the fault, and that you could not find another piece of the vein beyond the fault, which piece might form a true apex which would prevent this from being the apex.

Q. We are assuming that that is the edge of the vein, the vein is projected so that the absolute edge of the vein is on a plane horizontal with the top of the vein as exposed in the Siligo tunnel, and I am asking you whether that edge you would call an apex.

A. Well, it would depend largely on the angle

(Testimony of Oscar H. Hershey.)

that your edge would make with the general course of the vein.

Q. Let us assume that the surface is eroded down to the plane of the Apex drift or Siligo tunnel, and let us assume that there is a vein lying along this line of the fault, outcropping at the surface to the easterly end line of the Senator Stewart Fraction claim; would you call that outcrop apex of a vein?

A. Yes, if it had a course which would not make an angle of less than 90 degrees with the general course of the vein, I would call it a portion of the top or apex of the [1002—957] vein.

Q. What does the general course of the vein have to do with the question of its being apex or not apex?

A. I would like to illustrate that by making a sketch.

Q. Well, I will withdraw the question for the present, till we get through over here.

A. Well, I would like to make that explanation now.

Q. But I have withdrawn the question and I will give you permission to answer it later. So you say that if the conditions exist which I have supposed, this outcrop would be an apex?

A. If that outcrop would make an angle of less than 90 degrees with the general strike of the vein, I believe it would be a portion of the apex.

Mr. FOLSOM.—Q. Do you say less than an angle of 90 degrees with its course?

A. The angle between the general strike of the

(Testimony of Oscar H. Hershey.)

vein and this portion that we have of the vein projected up along the fault.

Mr. GUNN.—Q. Let us take this projection now that we have made on a plane with the Siligo tunnel or the apex exposed in that tunnel, and we will project it along the [1005—958] plane of this fault. What would be the strike of that vein along that apex and below the apex?

A. The local strike along the portion that you have projected up along the fault would be the same as the strike of the fault.

Q. And the dip would be at right angles to the strike?

A. At right angles to the strike at that point, the dip is invariably at right angles to the strike.

Q. And would not the strike alike of the apex and below the apex and the dip from the apex determine whether that is an apex or not?

Mr. FOLSOM.—I object to that as calling for a conclusion of law.

A. I would like to draw a sketch of that.

Mr. FOLSOM.—I object to that as being a question of law. If you ask the opinion of the witness as a geologist as to what it would constitute geologically, we have no objection, but not as to what constitutes it legally.

Mr. GUNN.—He has used it with reference to this case.

Mr. FOLSOM.—No, sir. You supposed a hypothetical case. You have drawn the apex the same as what you call the Clancy fault apex, and not in ac-

(Testimony of Oscar H. Hershey.)

cordance with the actual facts. [1004—959] Do you ask him as a geologist?

A. I asked him as he himself used the term “apex” in this case.

(Objection overruled. Defendant excepted.)

A. In answering that question I would like to draw a sketch to make my answer clear.

Q. Well, you can answer the question, and then explain by a sketch if you desire.

The COURT.—Answer the question, and then you can explain.

A. I don't believe that the local strike and dip of that portion of the vein that would be projected along the fault, in view of the fact that the vein extends a very great distance away from the fault, would necessarily make that portion an apex, and I would like to draw a sketch to explain my idea of an apex.

Now, if we suppose this sheet of paper, which stands at an inclination of probably 70 or 75 degrees, to represent a vein, the upper edge, the edge nearest the ceiling would unquestionably be the top or apex of the vein.

Q. Yes.

A. Now, if we cut off a strip along the right side of [1005—960] the paper along a line which I have indicated by a blue line which I have marked A-B, I believe that the portion along that line would be a portion of the apex of the vein for the same reason I believe that if we cut off another portion of the paper along the line B-C, that that line would represent a portion of the bottom edge of the vein.

(Testimony of Oscar H. Hershey.)

Q. Just to make it plain, Mr. Hershey, may I suggest that you put on the course of the strike of the vein and the dip, by lines?

A. The strike of the vein is indicated by the lines D-E which is supposed to be horizontal, that is, parallel to the upper edge of the paper.

Sketch by Mr. Hershey referred to is marked Defendants' Exhibit "N," for Identification.

Q. Referring to this Exhibit N—

A. I haven't finished my explanation.

Q. Very well.

A. The line F-G on Defendants' Exhibit "N" is supposed to be, and was intended to be at right angles to the line D-E, and to represent the general dip of the vein. D-E represents the general course or strike. Now, I have cut off a [1006—961] a portion of this paper along the line B-C.

Mr. DINES.—Can't we imagine it to be cut off?

WITNESS.—I prefer to cut it off. Now, I have cut off the paper along a line which is just outside of the line B-C, leaving the line on the paper, and if the vein were not bent up along the fault it would have a position very similar to this. That portion which would be cut off by the fault would distinctly undercut from B to C; that is to say, it would make an angle of less than 90 degrees to the general strike of the vein. But owing to the influence of the fault, the portion of the vein which is represented by the portion of the paper B-C has been bent up a little. Now, that bending does not appear to me to constitute that edge any portion of the upper edge or apex of

(Testimony of Oscar H. Hershey.)

the vein; it still remains a portion of the bottom edge of the vein.

Q. Now, you have taken into consideration the entire vein disclosed by these workings, have you not?

A. I have.

Q. Now, let us step over here to the model a moment and let us take the projection of the vein that I asked you about a moment ago, along the line of the fault up to a horizontal plane on a level with the Apex drift. We will assume that, [1007—962] and we will assume that the vein is cut off or faulted at a distance, we will say, of 250 feet from the line of cut off as shown on this model. This we know nothing about, for it is gone. Would then this edge along the plane of the Siligo tunnel be the apex of that section of the vein?

Mr. GRAY.—Which way from the Siligo tunnel over here toward the Clancy fault or the other way?

Mr. GUNN.—I think the witness understands.

Mr. GRAY.—Well, I don't understand.

WITNESS.—I think I understand.

The COURT.—Just let the question be read, if Mr. Gray is uncertain. I think I understand the question.

(Question read.)

A. In order to answer that question I would like to draw another sketch.

Q. You can answer it yes or no, and then you can explain if you care to.

A. I don't think it would. I would like to make an explanation of that in a sketch.

(Testimony of Oscar H. Hershey.)

Mr. DINES.—It seems to me that the witness can answer questions without illustrating everything by a sketch. I am not familiar with your Honor's practice, but I think [1008—963] that is improper on cross-examination. Some of them we have not objected to, of course.

The COURT.—Well, my practice has never been along the lines of this case. I have never had a case exactly like this. This is a very peculiar case, and it has been illustrated profusely on the other side, and I think I shall allow it to be illustrated by this side. It is an unknown field to me, as far as practice is concerned.

Mr. DINES.—My objection was not as to their right to illustrate, but as to the order of the introduction of the illustration.

The COURT.—Well, we will allow it in this case.

A. Now, I have a new sheet of paper on the board, standing at an angle of probably 70 or 75 degrees, and I will draw a horizontal line to indicate the general strike of the vein.

Sketch by Mr. Hershey marked Defendant's Exhibit "O," for Identification.

WITNESS.—(Continuing.) The line A-B on Defendants' Exhibit "O" represents the general strike or general course of the vein. Now, I draw a line from B to a point C, which [1009—964] line makes an angle of less than 90 degrees with the line A-B. I will cut off the paper along that line, then I will bend up the edge near the line B-C to represent the actual conditions as we find them in the ground.

(Testimony of Oscar H. Hershey.)

Q. Well, but my question—

A. Now, I will cut off a strip—

Mr. FOLSOM.—Let him go ahead.

A. —to represent the section 200 feet in width.

Q. Two hundred feet away from the line of cutoff or the present edge of the vein?

A. Yes, and I will double this strip back along the portion of the line A-B that I have cut off. This strip is probably three inches wide, and I am now holding it at approximately the position which it has in the ground, and it looks to me like a chimney of ore, rather than a vein, and the upper end of it appears to be at B.

Q. Whatever it may be, where is the top of that chimney of ore or vein?

A. If it is a chimney of ore, as it appears to me—

Q. We will call it a vein; we will assume that it is a vein.

A. I don't know that I am willing to assume that that is [1010—965] a vein.

Q. Well, I ask you to assume that it is a vein.

The COURT.—Yes, assume it to be a vein according to the question.

Mr. FOLSOM.—The question is, where is the top?

A. Assuming it to be a vein, a portion of the top is represented by the line B-C. Of course it has been detached from the remainder of the vein, consequently it has no direct bearing on the case.

Q. I will ask you if, according to your own definition, the line B-C would not be the top edge of that vein?

(Testimony of Oscar H. Hershey.)

Mr. GRAY.—Held the way you hold it or the way he held it. You hold it differently from the way he did.

Q. Well, we will put it in the model here. We are carrying it up this way.

A. That is not the position it occupies in the ground.

Q. Well, I am taking an assumed shape of a vein, and we carry it up along the fault, and I am asking you, assuming that the top of that vein is on a horizontal plane with the Apex drift or the apex disclosed in the drift, and that this vein is cut off at a distance of 200 feet, we will say, away from the present line of termination against the Osborne [1011—966] fault, and I will ask you now if that edge on a level with the Apex drift would be the top or apex according to your understanding of an apex.

A. Yes, in that case, which is not at all analogous to the case which is being tried here. This seems to be entirely a supposition case. In that case it would be a portion of the apex.

Q. Now, at what point would this have to be cut off in order to make this line which you have described as the top, the side or the bottom of that vein; point out here if you will?

A. I cannot point it out on that model; I wish to refer to the sketch, Plaintiff's Exhibit "N." In the manner in which you held that paper it appeared to me that the line A-B would represent a similar position—[1012—967]

(Testimony of Oscar H. Hershey.)

Q. Just a moment. I will ask you to just draw a line there representing the Apex drift and the apex of the vein in the drift of Defendants' Exhibit "D."

A. In the first place, you are assuming an apex which I do not know exists. I am willing to concede that it probably exists.

Q. Yes, you concede that it exists.

A. As drawn on Exhibit "O" the line "XY" may be taken to be the abnormal bend of the portion of the vein in the Siligo tunnel level near the point where it is cut off by the so-called Osborne fault.

Q. Draw a line approximately six hundred feet long on a horizontal plane with the assumed point of apex in that drift. A. A horizontal line?

Q. A horizontal line.

A. The line "YZ" may be taken to be such horizontal line.

Q. Now, we are assuming that the line "YZ" is the edge of the vein carried up along the Osborne fault to a horizontal plane with the apex in the Siligo tunnel. A. The line "YZ"? [1013—968]

Q. Yes, sir.

A. It cannot be. It makes more than a right angle with that line. Oh, I see now.

Q. Doesn't it represent that plane?

A. Yes, sir, I see. It cannot be the line because it makes too small an angle with the line "XY."

Q. It is approximately correct?

A. Not even approximately correct.

Q. I wish you would draw then, in your own way, a line representing the edge of that vein carried up

(Testimony of Oscar H. Hershey.)

on a projection along the Osborne fault, to a plane, a horizontal plane, on the same plane as the Apex drift.

Mr. GRAY.—I do not understand the question. I object to it for that reason.

The WITNESS.—I do not either.

Mr. GRAY.—And nobody else can. I object to the question on the ground it is absolutely unintelligible.

Mr. GUNN.—Read the question. (Question read.)

Mr. GRAY.—It is impossible to conceive the vein should ever have taken any such position along the Osborne fault, when as a matter of fact it is squarely cut off by a fault.

The COURT.—This is cross-examination, and the idea [1014—969] is to illustrate by this witness.

Mr. GRAY.—It is illustrating by doing something impossible.

The WITNESS.—I believe I understand the question.

The COURT.—Objection overruled.

A. I think if the line "YZ" were drawn—well, being purely a supposition case, it would stand as it is.

Mr. GUNN.—Q. Now, where would that section of the vein have to be cut in order to make a side edge?

A. In order to make a side edge it would have to be cut at a right angle to the general strike of the vein.

Q. We are assuming the general strike as is shown upon that. Just draw a line through at right angles where it would have to be cut to make a side edge.

(Testimony of Oscar H. Hershey.)

A. It does not appear to me that the general strike of the vein can be determined from that sketch because the line "XY" and the line "YZ," those lines are supposed to be horizontal, aren't they?

Q. Yes, sir.

A. I will modify my answer. Supposing the lines "XY" and the lines "YZ" on Defendants' Exhibit "O" to represent a horizontal section through a vein, the line "XZ" [1015—970] would be the general course of the vein?

Q. Very well. Now, what would be the dip?

A. The dip would be at right angle to that course, and it is indicated on the sketch by an arrow labeled "dip."

Q. And is it not true that the vein would have to be cut down the line of that dip in order to get a side edge?

A. Yes, sir, it is, because if cut on any other line it would either be an upper edge or a lower edge.

Q. Where you have a side edge of a vein at any point along that edge that you depart along the vein on the strike of the vein you are going at right angles, are you not, to the edge?

A. If you depart along the general strike, yes, sir, you are going at right angles to the edge.

Q. Yes, and you would be going out on a horizontal plane? A. Yes, sir.

Q. Step over here to this Exhibit 1 and show me, take any point at which you have found the edge of that vein as you have stated, at which you can depart at right angles to the line as cut off and not pursue

(Testimony of Oscar H. Hershey.)

a downward [1016—971] course.

A. Your question, as I understand it, is that if I can show you any point along the line where the so-called Osborne fault cuts off the vein at which I can depart from that line at a right angle to that line, keep within the vein and not pursue a downward course?

Q. From the point of departure.

Mr. GRAY.—This Exhibit 3 you might use instead of using No. 1.

Mr. GUNN.—All right. I am confining it here to the edge of the vein as you have observed it and marked it upon this map.

Mr. GRAY.—It is marked more plainly.

Mr. DINES.—We object to counsel for the defendant making suggestions; let him put it on Exhibit 1, the one we are talking about.

The COURT.—Let counsel pursue the examination in their own way, Mr. Gray.

A. Well, you have talked so much that I believe I will have to have the question read.

The COURT.—Very well.

(Question read.) [1017—972]

Mr. GUNN.—I am asking him between the points that he has designated here, the points “C” and “D.” That is where he says he has observed the line of cutoff.

Mr. FOLSOM.—That is just a local—

Mr. GUNN.—All right; taking that for illustration, I am asking him if there is any point between “C” and “D” that he can depart from the edge on a

(Testimony of Oscar H. Hershey.)

right angle to the line of cut-off as he has traced it upon this map without pursuing a downward course on the vein.

Mr. FOLSOM.—With that explanation I have no objection.

A. No. I would like to make a little explanation in connection with that, that is, similar to the explanation made by Dr. Lawson the other day, and that is, if we assume a line “MN,” a presumed horizontal line indicated on Defendants’ Exhibit “O” to be the general strike of the vein, we draw a line below that labeled “HK,” and suppose that line to be the line along which the vein terminates downward, one can go from a given point on that line, for instance, at the point indicated by the letter “R,” on a downward course to some other point within that vein, in other words, we can go from some point on the bottom of the vein on a downward course to some other point within [1018—973] the vein without getting out of the vein.

Q. And when you go on a downward course from the bottom of the vein, if you go at right angles to your line of cutoff, you go upward instead of downward, do you not, every time?

A. I do not understand that question.

Mr. GRAY.—Read the question.

(Question read.)

Mr. GUNN.—I withdraw that question and I will ask another one. I will ask you to put a strike and dip on that piece of paper. Mark this for identification.

(Testimony of Oscar H. Hershey.)

The paper was marked Defendants' Exhibit "P" for Identification.

Q. I will ask you to draw a line which would represent the bottom edge of this vein on Defendants' Exhibit "P." You drew a diagram here a few minutes ago through what you called the bottom edge. Now, I understood you to say—

A. I would like to explain this sketch, if you please.

Q. All right.

A. On the sketch, Defendants' Exhibit "P" I have drawn a line "ABD" presumed to be horizontal and to indicate the [1019—974] general strike of a vein. I have drawn a line perpendicular to that, the line "CD," to represent the general dip of the vein. I have also drawn the line "EF" to represent an incline bottom to the vein.

Q. What you call a bottom edge?

A. What I call a bottom edge.

Q. And you have said that you can proceed from that bottom edge on a downward course on the vein, have you not?

A. Yes, sir, that is, not from all parts of that bottom edge but from any point higher than the point "E."

Q. Now, is there any point on that bottom edge that you can depart at right angles to your line of cutoff that you would not be pursuing a course upward?

A. No, there is not, and I am of the impression that I misunderstood your question in regard to de-

(Testimony of Oscar H. Hershey.)

parting at a right angle from the line along which the Osborne fault, the so-called Osborne fault, cuts off the vein. I thought I understood that question but I am rather inclined to believe that I did not. Presuming that line, the line represented by "CD" on Plaintiff's Exhibit 1, a line which is not necessarily the line along which the Osborne fault cuts off the vein, because I have not observed the exact [1020—975] point on the lower Stewart tunnel at which all parts of the vein are cut off by the Osborne fault, but presuming that that line does for the purpose of this illustration represent the line along which the vein is cut off by the so-called Osborne fault, that line has a course about north 50 west. If I would depart from that line at a right angle it would be on the line south 40 west; depart from any point on that line on a course south 40 west, I do not believe that I would go on an upward course within the vein.

Q. I am not asking you about an upward course.

A. On a downward course, I meant to say.

Q. Yes. I will ask you to start at any point in that line which you have marked as the line of cutoff and depart at right angles from that line of cutoff and follow the vein up 200 feet, and state whether or not you would not be pursuing a downward course for that entire distance departing at right angles to the line of cutoff.

A. Yes, that is true so far as the short bent-up section along the fault is concerned; it is not true when you consider the vein as a whole; that refers

(Testimony of Oscar H. Hershey.)

to a very short portion of the vein along the fault.

Q. One more question. You have already said that in [1021—976] order to have a side edge you must have a cutoff parallel with the line of your dip; is that not correct? A. Yes, sir.

Q. And at right angles to your strike?

A. Yes, sir.

Q. Then, is it not true that any line or cutoff that diverges from your line of dip as you go downward on the vein makes a top edge and not a side edge or bottom edge? A. That is true.

Q. Now, just a moment.

Mr. FOLSOM.—Wait a moment; he has not finished.

A. In connection with that I would like to explain to the Court that my understanding is that Mr. Gunn's question referred to a line which on Defendant's Exhibit—

Q. I was not referring to any line—

A. (Continuing.)—"N" would be indicated by the line "AB."

Q. Yes, or you can draw a line on this Exhibit "P"—let me draw a line. Now, I have drawn the line "XY" indicating a line of cutoff of a vein and as you go down on that line it diverges from the line of the true dip as shown by "CD," does it not? [1022—977] A. It does.

Q. And that being true, the edge presented by a line of cutoff is the top edge and not the side or bottom edge?

A. It is the top edge of a portion of the vein as

(Testimony of Oscar H. Hershey.)

we understand veins.

Q. Yes. Assuming that the line "YT" is parallel to your true line of dip, the edge between "YT" would be a side edge, would it not?

A. It would.

Q. And assuming that the line "TU" converges with the line of your dip as you go downward, the section between "T" and "U" would be a bottom edge, would it not? A. It would.

Q. If we should go here to this map and take the section the section I just called your attention to, a section of this vein 200 feet away from this line of cutoff, and you say that for that distance there would be a downward course, as I understood you, passing at right angles to the line of cutoff?

A. I don't know just how far you would go on a downward course, but a short distance until finally you would begin practically along the strike of the vein. [1023—978]

Q. Well, take a section here 200 feet from your line of cutoff and as to that section of the vein would this line of cutoff be a top edge?

A. If you cut that section of the vein away and do not consider it at all in connection with the remainder of the vein, and if you define it as a vein, that edge would be a top edge.

Q. And in your statement that this is a side edge you take into consideration the entire course of this vein as shown through all of these workings?

A. I do.

Mr. GUNN.—That is all.

(Testimony of Oscar H. Hershey.)

Redirect Examination.

(By Mr. GRAY.)

Q. Mr. Hershey, we have had a good deal of supposing by Mr. Gunn, and I am willing to carry one of his suppositions on to Exhibit 3 and suppose that on a horizontal plane we could project the vein upward along the line of the Osborne fault until it came to an elevation on a horizontal plane at the same elevation as shown in the Siligo tunnel, where would that vein go upon Exhibit "B"? [1024—979]

A. It would go beyond the northeast side line of the Senator Stewart Fraction claim.

Q. Sure. So that if you indulge in the one assumption it shows that it would not affect this case any more than if you indulged in the other?

Mr. DINES.—We object to that, your Honor.

The COURT.—The objection is sustained.

Mr. GRAY.—I want to get this red apex and lay it on the plan map. I think I could make the testimony a little more plain if we have it there. It will be here in a moment.

The COURT.—All right.

Mr. GRAY.—There is one question I might ask Mr. Hershey.

Q. I wish you would look at the model on the Stewart tunnel level and point out to the Court where the footwall of the Stewart on the Fir tunnel level approaches that vein along that level, to the end of the level, approaches most nearly to the Osborne fault, the footwall portion there; it would be the western portion as shown upon the model.

(Testimony of Oscar H. Hershey.)

A. I am not familiar with the position of the so-called [1025—980] Osborne fault in that vicinity, but I presume it would be in the vicinity of the end of that little crosscut, that is a crosscut from near the foot of R 4 E.

Q. Tinted in gray? A. Yes, sir.

Q. Reaching the blue celluloid? A. Yes, sir.

Q. And how close to that point do you find the Stewart vein?

A. The nearest exposure of the Stewart vein to that point is probably thirty feet; probably forty feet.

Q. Yes, sir; and what is the course of that vein as disclosed from that point within thirty feet of this fault to the point where it is most developed in its most southerly face away over here near the south side line of the Senator Stewart claim?

A. The general course of the vein between the two points indicated on the old Stewart tunnel level is about north 40 degrees east.

Q. And the one point is within about thirty feet of where the Osborne fault or this great fault is shown upon the model? [1026—981] A. Yes, sir.

Q. And that is just below the—it is from a point right near that point thirty feet from the Osborne fault where the raise extends upward to this Siligo tunnel? A. Yes, sir.

Q. So far as the footwall portion of the vein or that opening upon the vein is concerned, any particular abnormal bending extends from that point over to the Osborne fault?

(Testimony of Oscar H. Hershey.)

A. No, I rather think that the abnormal bending extends back as far as the foot of the R 4 E raise.

Q. Yes, sir; how many feet away from this point is the foot of that raise? A. Probably thirty feet.

Q. And how far is the raise from the fault, approximately, as nearly as the model discloses it? I know there is no direct opening.

A. Take it at right angles to the workings, about fifty feet.

Q. Mr. Hershey, it has been shown in evidence by Mr. Clancy who has made careful surveys of these openings and have gone to all of the places, and I understand that there are some perhaps that you have not visited, that the course of the edge of the end of the vein as it is cut [1027—982] off by the Osborne fault from the highest point near the Siligo tunnel or in the Siligo tunnel to the point where it crosses the east end line of the Senator Stewart Fraction claim is south forty east or north forty west. A. North 41 west.

Q. North 41 west; and the course of that edge of the end of the vein which is by the plaintiff called an apex has been testified by Mr. Greene as a course of north 45 west, a difference of four degrees.

A. If I remember rightly, yes.

Q. Taking it at the course of north 45—we will say 42 or 43, along in between the two—and extending a line a section at right angles to that course, what is the fact with reference to whether or not you follow on a level on an upward or downward course as you pursue that line through the vein in its ex-

(Testimony of Oscar H. Hershey.)

tension southwestward—any plane that you want to take there. If you want, I will be glad to project that so as to show the Court; you might take the protractor and show the Court how you go from the 300 to the 200 level.

A. As I understand, your question involves going from the point along which the vein is cut off from the so-called [1027½—983] Osborne fault to the extreme southwesterly edge of the vein so far as we know it, the greater portion of that course would unquestionably be on an upward course of the vein; it would be on a downward course for a very short distance near the line where the vein is cut off by the fault; beyond that it would be unquestionably on an upward course.

Q. In other words, let us just take some section here; I want to illustrate that to the Court. Give me a protractor. I would like to lay this accurately along the line which Mr. Clancy has given of south 41 east. Now then, is this ruler laid on there, this straight edge, of approximately north 41 west?

A. About north 42 west.

Q. All right; that is close enough. Take another straight edge, will you please. Here is one, an iron one. Will you be good enough to lay that on the point where the 400 foot level comes against the line at right angles?

A. (Witness placed straight edge on map.)

Q. A vertical section drawn through there passing along a line now at right angles from the point where the 400 level reaches that line—what is this green up

(Testimony of Oscar H. Hershey.)

here? Into what workings on your course south-westerly does that [1028—984] plane take you, keeping within the vein as nearly as you can?

A. It takes you up to the 300 foot level.

Q. Doesn't it take you any higher than that?

A. Not within the vein.

Q. Lay that up on the point where the 300 foot level comes against the—where with reference to the Gray drift does that line take you. I should have asked you with reference to the other; where did the other line take you with reference to that?

A. The other line took me to a considerable height above the Gray drift onto the 300 foot level.

Q. How about this one? You say the other took you to a considerable height above. How about the 300, taking a right angle from the point where the 300 level reaches this line of apex.

A. It takes me to a point considerably higher than any point of the Gray drift.

Q. Within the vein?

A. Yes; it is, practically disregarding the many crooks in the vein, it is practically following the strike of the vein. [1029—985]

Q. Do you rise along that line in the vein as you go upwards, in other words? A. Yes, sir, I do.

Mr. DINES.—Your Honor, we do not think he ought to lead his own witness.

The COURT.—Yes, sir; I sustain the objection.

A. Yes, sir; you rise.

Mr. GRAY.—Q. Take up now to the 200. That is above any of the workings in the Ontario?

(Testimony of Oscar H. Hershey.)

A. Yes, sir, it is.

Q. Take now the Stewart tunnel level at its most southerly, where the twist or turn caused by the fault is shown—

A. Mr. Gray, you do not keep that straight edge in the same position, and it affects—

Q. If you had to hold it here, you would understand why I cannot. I am trying to hold it as nearly along that line as I can. A. What is the question?

Q. Start on a line from the point where the Stewart tunnel level is extended along practically parallel with the fault and extend that line on to the southwesterly, where [1030—986] do you come?

A. You come to a point near the southwesterly end of that level, but in going there you cross a fault, so that I think that that fault should be taken into account in that part of the section which involves the following of the vein.

Mr. GUNN.—I do not understand the witness answered the question yet. You asked him if he passed upward or downward.

Mr. GRAY.—I understood it, Mr. Gunn; you have a right to recross-examine if you did not understand it.

The WITNESS.—His question involved keeping within the vein.

Mr. GRAY.—Q. Yes, sir; does that fault have anything to do with the course of the vein or with its dip?

A. It does; it affects the apparent course of the vein; it does not affect the true course of the vein.

(Testimony of Oscar H. Hershey.)

Q. Does it affect the dip of the vein?

A. It does not affect the true dip, but it affects the apparent dip.

Q. That is the Deering fault? A. Yes, sir.
[1031—987]

Q. Now, come up here to this point where we have found the vein on the Stewart tunnel level approximately 50 feet from the Osborne fault and lay your ruler at right angles to a course of north 41 west, approximately so. A. This point?

Q. Say, at the foot of that raise (indicating). Following along such a plane there do you go upward or downward or on the level?

A. You go on an upward course.

Q. You would reach a point above the Clancy fault if you follow the line of that plane far enough to the southwest, wouldn't you? A. You would.

Thereupon an adjournment was taken until 2:00 o'clock P. M. of this day, Tuesday, January 14, 1913.
[1032—988]

2 o'clock P. M. Tuesday, January 14th, 1913.

Mr. GRAY.—If your Honor please, when Mr. Hershey was testifying before lunch, he said that I moved that straight edge more or less—I was unable to hold it on the correct course on the map, and he would like to restate briefly the effect of running planes at right angles to the alleged apex which is the end of the vein and marked in red upon Exhibit 3, for the purpose of showing what would be the result.

The COURT.—He may correct his testimony in that regard.

(Testimony of Oscar H. Hershey.)

Mr. GRAY.—Q. You can go to the map, and take what means you desire and show whether you would be going on a level or going upward or downward from the apex on planes drawn at right angles.

A. If planes were drawn through the vein at right angles to a line connecting a point in the Siligo tunnel, where the vein is cut off by the so-called Osborne fault as indicated at a point W on Plaintiff's Exhibit 3, of which this is a tracing, and one were to travel along those planes in a southwesterly direction, the net result would invariably be an upward course. Of course there would be for a short distance near the so-called Osborne fault—there would be undoubtedly a downward course in that plane, but that downward course would soon be changed to an upward course and [1033—989] the net result of traveling along those planes would in all cases be an upward course in the vein.

Q. Taking a plane at right angles to the course of the alleged apex, as testified to by Mr. Clancy as having a course of north 41 west or south 41 east at the point where it crosses the east end line of the Senator Stewart Fraction claim where would that plane pass with reference to the ore bodies in the Ontario?

A. The plane would cut the vein at a considerable height above the ore bodies in the Ontario, that is, northwesterly from the other portion of the ore bodies in the Ontario mine.

Q. I call your attention on the model to the vein as disclosed some 900 feet on the Stewart tunnel level to a point which is but a short distance from the Os-

(Testimony of Oscar H. Hershey.)

borne fault, which you pointed out to the Court, between 30 and 50 feet from the Osborne fault—say 50 feet if you like at the bottom of raise No. 4 east. What is the course of the vein as disclosed there on that level from that point to its most southerly place where it is found?

A. About north 34 degrees east.

Q. And that is a distance of approximately 900 feet? [1034—990]

A. In that neighborhood; it is just about 900 feet.

Q. What is called the Clancy fault, as I understood you heretofore to testify, is disclosed in this raise near the south side line of the Senator Stewart Fraction claim, and what has been called the Clancy fault is again seen in the Siligo tunnel. Approximately, what is the course between those two points?

A. About north 40 degrees east.

Q. That has not been developed, as far as you have seen it, between those points, has it?

A. No, sir, I have not seen it between those points.

Q. These bodies of ore in the Ontario which have been developed, are how many hundred feet in a southerly direction from this end of the vein which has been called an apex by the plaintiff?

A. The nearest stoping in the Ontario mine is more than 600 feet southerly from the line along which the vein is cut off by the so-called Osborne fault.

Q. Now, without giving it exactly in degrees, just generally what is the relative strike of those ore bodies as disclosed throughout the workings in the Ontario with reference to the strike of this end of the

(Testimony of Oscar H. Hershey.)

vein painted in [1035—991] red by Mr. Clancy on Exhibit 3 and called an apex?

Mr. DINES.—I don't think that is redirect of anything brought out on the cross-examination. I don't think Mr. Gunn went into that.

Mr. GUNN.—I did not go into that at all.

Mr. GRAY.—You tried to keep him up close to the fault. I want to extend him out into the ground in controversy.

Mr. GUNN.—I have no objection.

The COURT.—You may go ahead. It is not properly redirect, though.

A. Well, I gave the course of the Gray ore body as north 30 degrees east, and the course of the Frank ore body as north 40 degrees east, and the course of the line along which the vein is cut off by the so-called Osborne fault as about north 41 west, that is taking the point where it passes under the easterly end line of the Senator Stewart Fraction claim to the point in the Siligo tunnel where the footwall of the vein apparently meets the so-called Osborne fault; that would give a course of north 41 west.

Q. What is the general course of the ore bodies in controversy here with respect to the alleged apex, the end of the vein which is called an apex at the fault? [1036—992]

A. It would be less than 90 degrees; the angle between them would be considerably less than 90 degrees.

Q. That would be the angle in here?

A. No, it would be the angle between the line along

(Testimony of Oscar H. Hershey.)

which the vein is cut off by the so-called Osborne fault, projected toward the southeast, and the average line taken through the Ontario ore bodies, projected northeast—the angle between those two would be considerably less than 90 degrees.

Q. Now, Mr. Gunn had you mark some little points on the map between which, along this fault, there was a local course of that edge, which I understood you to give as approximately north 50 east?

A. North 50 west.

Q. North 50 west?

A. But I explained that I do not positively identify that line as the line along which the vein is cut off by the so-called Osborne fault; it is simply a line connecting the point on the lower Stewart tunnel, the most easterly point at which I believed I could see vein matter, with the point on the 200 foot level at which I believe I can see the point where the vein is cut off by the so-called Osborne fault. [1037—993]

Q. That is of course simply along there in that local territory that you have referred to? A. Yes, it is.

Recross-examination.

(By Mr. GUNN.)

Q. Mr. Hershey, if I understood you correctly, you stated that if the vein should be projected along the Osborne fault to a horizontal plane coincident with the horizontal plane through the Apex drift, as I assume the question I put to you, that the edge would be without the surface lines of the Senator Stewart Fraction claim; was that correct?

(Testimony of Oscar H. Hershey.)

A. I don't quite understand that question. I don't see how you could project a vein along the Osborne fault in a horizontal line.

Q. I understood you to say that if the vein be projected on an upward course along the fault to a plane, a horizontal plane coincident with the horizontal plane extending through the Siligo tunnel or Apex drift, that the edge of the vein as so projected would be outside of the surface boundaries of the Senator Stewart Fraction claim. [1038—994]

A. Yes, if I understand your question, that is correct.

Q. Then, would you say that this model does not correctly represent that Osborne fault?

A. Why, that model does not pretend to show the extension of the so-called Osborne fault to the surface.

Q. If you should take a horizontal plane drawn through the Siligo tunnel or Apex drift, would it cut the Osborne fault outside or inside of the surface lines of the Senator Stewart Fraction claim as shown on the model?

Mr. GRAY.—Do you mean on the surface?

Mr. GUNN.—No; my question did not relate to the surface, nor did your question.

Mr. GRAY.—I was referring to a point on the surface.

Mr. GUNN.—I beg your pardon; I have a notation of your question.

Mr. GRAY.—I indicated it on the surface map.

A. I probably misunderstood the question, because

(Testimony of Oscar H. Hershey.)

my impression was that you referred to the line along which the vein, if projected on the plane of the so-called Osborne fault, would come to the surface, that line, I believe, would cross the northeast side line of the Senator Stewart Fraction claim. [1039—995]

Q. Does this model show that that Osborne fault, if projected to the surface, would fall outside of the surface lines of the Senator Stewart Fraction?

A. No, it does not. The model is only intended to show the position of the so-called Osborne fault at the points where it has been actually seen, that is, with the accuracy it *shown* those points. The celluloid has assumed the position which probably is not quite as the fault is in the ground.

Q. Now, there is one other question. You have a crescent-shaped vein, or an apex following a crescent, and one segment of the apex is lower than the apex in another segment, isn't it true that any plane that you would take from the lower segment of the crescent and extend it, you would have an upward course on the vein at some point?

A. Yes, you could go in an upward course from some point in the lower segment of the vein to some other point in the vein. That course, however, would be oblique to the general dip and strike of the vein.

Q. Well, is that true? Let me just put a rule on that.

Mr. FOLSOM.—It seems to me that is a question of common sense. It does not call for geological knowledge [1040—996] or anything else. I un-

(Testimony of Oscar H. Hershey.)

derstand that the Court takes judicial notice of ordinary A, B, C matters.

A. I am being educated all the time.

Mr. DINES.—That was something that Mr. Gray developed.

Mr. GRAY.—That was in a purely supposition case.

Q. Well, I am going to draw a crescent-shaped apex on Defendants' Exhibit "P."

Mr. FOLSOM.—I have no objection to his answering, but I made that comment with the possible result of shortening things.

Q. (Continued.) Now, if you have an apex in that form, and the segment between A and B is lower than the segment between C and B, is it not true that a cross-section taken through the segment between A and B, if extended far enough, would show an upward course on the vein?

Mr. GRAY.—Is that a plan or a cross-section?

Mr. GUNN.—It is supposed to be a plan.

WITNESS.—A horizontal plan?

Q. Yes. This is supposed to represent the outcrop on the surface. A. On a horizontal plane?

Q. No, not a horizontal plane, because there is a drop of the surface between A and B, and the segment from A to B [1041—997] is lower than the segment from C to B. I will ask you, having that apex, if you would assert that the dip between A and B at right angles to the course of the apex, if you would not go in an upward course if you pursued your course far enough?

(Testimony of Oscar H. Hershey.)

A. At right angles to the dip?

Q. We will start at right angles to the point B.

A. Yes, I will modify my answer made before; you would be going on an upward course in that course, and following the general strike of the vein.

Redirect Examination.

(By Mr. GRAY.)

Q. Following up along in such a line as that, you would come to the surface at a higher elevation than you started in, wouldn't you? A. Yes, you would.

Witness excused. [1042—998]

[Testimony of J M. Porter, for Defendants.]

J. M. PORTER, after being duly sworn as a witness for defendant, testified as follows:

Direct Examination.

(By Mr. GRAY.)

Q. State your name, residence and occupation, Mr. Porter.

A. J. M. Porter, Spokane, Washington, civil and mining engineer.

Q. How long have you been following that profession, Mr. Porter? A. It has been over 33 years.

Q. And where and in what capacities?

A. My first experience in mining was in the Black Hill, with the Homestake Mining Company in the engineering office. I was there about two years. I went there in the spring of 1880, and in 1882 I came to the State of Idaho. I was in the Salmon River country until 1885. Then I went to Salt Lake and opened an office there, and remained there until 1888,

(Testimony of J. M. Porter.)

doing general surveying and mine inspection work. Then I returned to southern Idaho. I had charge of [1043—999] some mines at Custer, Idaho, for a term; then I went to Bay Horse, where I leased for a while on the Ram's Horn mine. Most of my time from 1882 to 1885 was spent with the Ram's Horn Company, and other companies at Bay Horse, Idaho. In 1889 I came to this section of the country, that is, I came up here to take charge of the Gem mine, and in the spring of 1890 I opened an office for the doing of general work in Wallace, and I continued that line until I went to Spokane in 1898 or 1899, where I have been generally engaged in either conducting the operations of mines or mine surveying or inspection work since that time to the present time.

Q. Mr. Porter, in the course of your general practice, have you had occasion to visit and inspect properties and examine them in different portions of the country?

A. Yes, sir, in this State, Dakota, Utah, Nevada, Washington, Oregon, California and British Columbia.

Q. Have you ever prospected and located mining claims? A. Yes, a little.

Q. What familiarity have you with the veins and mines of the Yreka mining district in the neighborhood of the properties in controversy here? [1044—1000]

A. My first inspection of anything in that district was in January, 1890, and during that year I was

(Testimony of J. M. Porter.)

around there more or less, and the next year or two I was not in Wardner so much, but in other parts of this district, but since 1894 I have been in that district practically all the mines there.

Q. What experience have you had in the practice of your profession to observe the development of those properties during the many years you have testified you have been acquainted with them?

A. Well, quite a good many of them were in the prospecting stage at that time, and I have watched the development from that time until the present, especially so with the Stewart mine. It was nothing but a prospect when I first became acquainted with it.

Q. When was it that you first became acquainted with the Stewart and Stewart Fraction, or the property of the Stewart?

A. In 1899. Sometime during that year I believe I made an adverse survey as against the Quaker. That was my first real acquaintance. While I have been over the ground since, that was the first time I ever inspected the ground, and not very extensively then. It was then [1045—1001] owned by the prospectors and men who had located the ground. From that time until the present management came in control of it I was around quite a good deal, up to within a few months before it changed hands, I did the surveying for the boys who did the development, and was around now and then making surveys, and was around during the time I was not making surveys.

(Testimony of J. M. Porter.)

Q. You say from that time up to within a few months before the present management took over the property you did such surveying as was done for the men who were developing it at that time?

A. I did, yes, sir.

Q. That took it up to about what year, Mr. Porter, as nearly as you can recollect; it was some time after 1900 at least?

A. Oh, it was along in 1905 or the fore part of 1906, along in there some place.

Q. Mr. Porter, have you been in to that property since that time?

A. I was in in 1908 and took a look through the mine, and then recently in October.

Q. That is, October of 1912? [1046—1002]

A. October of 1912, yes, sir, I have been in there quite a good deal of the time.

Q. Have you been through all of the workings which are accessible as far as you know?

A. As far as I know, I have been in all the works that are accessible. They may not be accessible now, as the ground is settling. Take No. 3, I had to crawl through almost on my hands and knees Sunday in getting through, and it may be closed now.

Q. Where did the miners commence to develop this property and where were they working when you first became acquainted with it back there in the early years of its development?

A. Tunnel marked No. 4 was in existence at that time. There were about five or six other small tunnels, and one of considerable length, that is all caved

(Testimony of J. M. Porter.)

in. Of the condition in that I have no recollection. There is another tunnel marked here tunnel A, it is a short distance above the upper Stewart tunnel and bends around and crosses over this tunnel, this upper Stewart tunnel, at some place near the intersection or near where the upper Stewart tunnel passes over the old lower Stewart tunnel. [1047—1003] That tunnel showed a little ore, a little carbonate, and some pyromorphite. This tunnel, upper Stewart tunnel, was driven in—well, I am getting a little ahead. There was No. 6 tunnel.

The COURT.—This is on Exhibit “B”?

Mr. GRAY.—This is on Exhibit “B.”

A. Defendants’ Exhibit “B.” No. 6 tunnel was driven in. That was the first work done after I became acquainted with the property, and in that they struck a little ore about half way between the mouth of the tunnel and the face. Then this upper Stewart tunnel was driven in with the expectation of encountering some of this ore that is shown in these two tunnels that I have mentioned. It did cut a little ore very nearly under where the present face of that A tunnel is shown. That “A” tunnel is longer than that, but that is all that is probably open now. There they struck a little native silver and a little bit of lead in a small vein, and they continued on, and about some place between that, I cannot locate it on this map, and the south boundary of the Stewart Fraction where this upper Stewart tunnel crosses the south side line of the Senator Stewart Fraction claim an upraise [1048—1004] was made and

(Testimony of J. M. Porter.)

some ore taken out, and a little farther to the south of that between stations L 5431 and L 5432 an incline raise was put up about thirty-five feet. There was a vertical raise put up about ten feet from that which got into the ore vein somewhat flatter. Some ore was taken from that, and just how much was stoped I don't know, but some considerable stoping was done, and driven out to the surface. While I have not been through that myself, I have seen the steam rising from here, from the mine vent.

Q. From here, you mean from the vent?

A. From the vent coming up from below. I won't say that I was through that, but I was aware of the fact at the time that they had put a hole through there and the miners spoke of it, and the manager told me about it.

Mr. DINES.—We shall object to the witness stating any hearsay information whatever, and I move to strike it out.

The COURT.—Yes, sir; that will be stricken out, what the manager said.

A. Well, from my own knowledge I know of a draft through there and the steam arising from the vent. From this little incline raise there is some ore taken out that [1049—1005] I have seen coming out myself. I did not survey the stopes; they did not have their stopes surveyed, they did not spend any more money than was absolutely necessary; they simply surveyed the workings to keep track of what they had done. Continuing southerly they cut a vein running north; they drifted along that northeasterly

(Testimony of J. M. Porter.)

about nearly 200 feet, possibly over 200 feet, and in a southerly direction about eighty or ninety feet. This is cut off by a fault on the southerly extension, but on the northerly extension there is still ore showing out in there, but it is not very high grade. The ore body through there was worked, was mostly rather small, from eighteen inches to three feet. They had a much larger body of lower grade ore; they put in some hand gigs and worked some of that, too, but the principal body they worked, that was something they could ship without concentration. There was also a raise run right along near this junction. Near the intersection of a vein, there was a slit that was nearly vertical, places you might say it was vertical, but the general dip was about sixty-five. They cut through a flatter vein of about forty-five degree pitch, the intersection near L. 5441, can be seen [1050—1006] just below the tunnel and again just above the tunnel where the upper part of the ore is ascending to the northwesterly on an angle from about forty-five degrees, while below it is flattening off, it is not quite so flat as that, but at a flatter angle than this nearly vertical portion. On this upper portion of this vertical part it is what I call the vertical section, a steeper section than the flat one, extended up about sixty feet on a steeper vein; took some ore out of that, but the greater portion of ore came from this flatter portion.

Q. That is the vein that was dipping upward?

A. That is the vein that was dipping upward at an angle of about forty-five degrees.

(Testimony of J. M. Porter.)

Q. In what direction?

A. Northwesternly direction. From that they were stoping upward, from this No. 3 tunnel; there is ore connection through there. On this No. 3 tunnel there are a number of raises which show the dip from forty to forty-five degrees ascending in a north-westerly direction.

Q. What is the general direction of the vein as disclosed in those workings?

A. About north 28 to 30 degrees easterly. In some [1051—1007] places you find local courses somewhat nearer northerly and southerly than that.

Q. I want to direct your attention, before we proceed any farther, to this raise which you have spoken of as having gone up somewhere between stations L5431 and around in the neighborhood of L5431, some place in there.

Mr. DINES.—I beg your pardon; I did not understand the witness to state that there was any upraise at the point L5431. He brought it farther down to the southwest.

A. There are two in there. One is about halfway between this point or between these two points.

Mr. GRAY.—Between L5430 and L5431?

A. Yes, sir. And another—that was about seven feet southerly from station L5430. Then there is another between L5431 and L5432.

Q. Directing your attention to the one that is between L5430 and L5431, did you survey that at the time it was made? A. No.

Q. At about that time?

(Testimony of J. M. Porter.)

A. I surveyed the tunnel along in there.

Q. You saw that raise? [1052—1008]

A. Yes, sir.

Q. And the ore from it?

A. I saw some ore that was coming out about that time.

Q. And the other one, the one just south?

A. I saw ore coming out. I surveyed that.

Q. When was it that you made those surveys? You preserved the notes, did you, of your surveys made at that time?

A. Yes, sir. December 16, 1902, is when I surveyed this little raise between L5431 and L5432, on Defendants' Exhibit "B."

Q. I want to direct your attention to Defendants' Exhibit "J," to a raise which is shown upon that section which Mr. Wiley has heretofore introduced. You furnished Mr. Wiley the information concerning the raise? A. I did.

Q. Is that the one you have spoken of there?

A. That is the one I have referred to.

Q. Was the vein disclosed in that raise?

A. The vein was disclosed in that raise and some carbonate ore taken out of there. [1053—1009]

Q. Is there anything else in connection with these workings you desire to state? What was next done in the development of this property, and what, if anything, did you have to do with the laying out of that development?

A. The old lower Stewart tunnel was started as shown on this map, the mouth being at L5229. It

(Testimony of J. M. Porter.)

started on a course—cut through this and reaching the ore body a little to the easterly in its downward dip. At the face of this—

Q. That was lower in elevation?

A. Lower; yes, sir, it is about 185 feet—about 195 feet.

Q. Lower in elevation than the upper?

A. Than the upper, yes, sir.

Q. Who laid out that work?

A. I did. The course you observe runs straight until it comes to a point opposite L5324. At that point a big fault was encountered, and not stoping it they had not made preparation, and they run in so that they could not continue any further there. They came back about halfway back from that point to L5230 and drove a little more to the east and passed through that, [1054—1010] and it is all lagged up tight. They had to drive lagging to get along through that; in fact, this is all pretty loose ground. At point L5316 an almost vertical fissure was encountered with a little carbonate of ore in it. That was followed off to the southwesterly about 60 or 70 feet where a sufficient showing is made to cause them to put up a raise on it some fifteen or twenty feet or possibly twenty-five feet higher and opened up quite a stope on this vein which runs easterly and westerly, and between “D” two east and D 1 east. There was quite a good deal of stoping done on that while I was with the company. This drift D 2 west was driven not quite so far as it is now. The main tunnel was driven southerly and around to the foot

(Testimony of J. M. Porter.)

of this what is now called the Samuels raise. The raise was not put through at that time. This D 1 east was driven out a short distance, possibly about to L5319, and is marked Deering crosscut, was driven out some few feet to the southerly of D 1 east.

Q. You say that the main tunnel had extended around here to where this little crosscut runs back to the foot of the Samuels raise?

A. Yes, sir. [1055—1011]

Q. It is now called the Samuels raise?

A. Yes, sir.

Q. When did you next visit the property, did you say? A. I think the next visit was in 1908.

Q. What further development did you find or extension of the development which you had started of the development of that vein at that time?

A. The main level as we called it then had been extended out to L5249, and drifts extended along the vein, as it seems to me from the sketch I made at the time, to the present face of that drift; that is in a southerly or a little southwesterly direction. They had also driven northerly from that along the vein and connected around through this Deering crosscut that had been put through there. That is, they were connected but they were not reduced to the same level; one was higher than the other, but they had connected through. That was about the extent of the work at that time. There was some considerable raises, there were some raises and little crosscutting done at different places. The vein was opened out

(Testimony of J. M. Porter.)

to a good width here, and some very good ore shown.

[1056—1012]

Q. That was ore encountered by—

A. (Interrupting.) By what we call the main tunnel at a point approximately L5249.

Q. At that time did you observe the general course of the vein as disclosed by those workings and its dip?

A. I may have some courses and dips on that. (Referring to notes.) The courses taken on this were with a pocket compass. I have a course shown here on my notes at about the intersection of the tunnel with the vein at about that point L5249, of south 25 degrees west along the vein. That is about all I have. I have sketched the vein continuing along; I have sketched it just to keep it on the face regardless of course.

Q. When you next visited this property, Mr. Porter, in 1912, in October, I understand, what did you observe the course of the development had been subsequent to your prior visit and at the time you visited it on this occasion and in that connection, if you will, tell the Court what you have observed from your inspection as to the course of that vein and its dip, and what familiarity with the development of that property from the very beginning justifies you in stating as the course and dip of [1057—1013] the vein, just in your own way and using either the maps or the model to illustrate your testimony?

A. The development as shown by the different colored levels following along the vein as a miner

(Testimony of J. M. Porter.)

would work it and generally in a course of north about 30 east is its course. In some places there are some slight changes one way or the other from that. The greatest distance exposed would probably be on the old lower Stewart tunnel where there is about 900 feet driven on the tunnel level which was sufficiently near the strike of the vein to consider that the strike. While it rises a little running to the southwesterly, it is not enough to make any material change in the course of the vein. But that course projected a distance of about 900 feet, it would be north 43 east. The raises from that are going up at about right angles to that tunnel, a drift in a northwesterly direction. The incline shafts are going downward in a southeasterly direction about at right angles to that course given, and on each level except where disclosed by some faults, the general course is about as described. They vary somewhat from that, as I say. The general dip would be shown by the incline shafts and [1058—1014] raises, being southeasterly, and the general strike of the vein would be shown on the various levels a little east of north and west of south.

Q. How far to the north have you been able to follow this vein on the various workings?

A. The most northerly part that I have seen the vein would probably be in the Siligo tunnel.

Q. I am going to particularly call your attention to that. From the Stewart tunnel downward where do you find the workings terminating to the north?

A. On the levels below that. There is some stopping done on a little loop shown around at the bottom

(Testimony of J. M. Porter.)

of the incline connecting the Siligo with the Deering crosscut. There is a crosscut shown on that which I have not been in, but there has been some stoping done around the base of that on the level of the old lower Stewart, at the foot of that raise. Then again we find ore—the stoping shows that the vein has been along D 5 west and D 5 east, very little of that being open now, but you can see the timbers in there which is an indication that it has been stoped.

Q. Do you find a termination of the vein on its northerly course in these various workings? [1059—1015]

A. Yes, sir, it is terminated and against a fault or fault breccia in every instance.

Q. In every instance. I want to direct your attention before I go farther, to Defendants' Exhibit "K." Calling your attention to that cross-section, I will ask you whether or not in your opinion based upon your experience, your particular acquaintance with veins in the Yreka mining district, and your acquaintance with this property in its early development, and your examinations made since, it is your judgment—whether or not it is your judgment that the vein continues upward from the upper Stewart tunnel as delineated upon that cross-section.

A. I have no doubt of it at all.

Q. Now, again directing your attention to Exhibit "B," have you examined—are you acquainted with the Ontario mine and the workings within the Ontario mine?

(Testimony of J. M. Porter.)

A. Yes, I am very well acquainted with those works.

Q. You are acquainted with the Frank and the ore bodies and the May ore body? A. Yes.

Q. And the other workings from the Stewart which are shown connecting with those ore bodies.

[1060—1016] A. I am.

Q. Mr. Porter, will you state to the Court what the general course of those ore bodies in the Ontario is and what the direction of the dip is?

A. The Frank stope—230 feet of a drift under the Frank stope is north 38 degrees east. The dip would be at right angles to that, ascending in the direction of about north 62 east. The raises shown on the map point the direction of that dip.

Q. The stopes above that show the course of the vein?

A. The stopes above that show the course of the vein.

Q. The same as the drift? A. Yes, sir.

Q. Now, all right.

A. In the Gray stope and the Gray drift the course is north 30 east for a distance of 330 feet, and the stopes ascending to the westward as shown by the raises and colored portion called stopes.

Q. Mr. Porter, from your examination, your acquaintance with this property, where would you say was the apex of the ore bodies which have been developed in the Ontario to which your attention has been directed? [1061—1017]

A. The top—the apex of that vein, if not disturbed

(Testimony of J. M. Porter.)

by a faulting, would undoubtedly be off to the westward; here the hill rises several hundred feet above this, would be several hundred feet to the westward of those stopes.

Q. Have you walked along the connections with those two stopes marked in brown upon Exhibit "B," the 300 level, and connections of the Stewart Mining Company, were they connected with those stopes?

A. Yes, sir; they connected with the top of the stopes.

Q. How far have you walked along there—I do not care in feet, but to what point?

A. I have walked from one end to the other. I have walked from the most northerly and along through the various workings until at point L5131 there is a short crosscut easterly, and then continuing on the level in a southerly direction into the top of the Gray stope. I find at point L5131 I left the main tunnel, gone south about 100 feet or such a matter, then swings off through the country rock about 150 feet following the drift in a southerly direction down into the top of the Frank stope. [1062.—1018]

Q. At the most northerly end of that drift upon the vein what do you encounter?

A. The vein on each level terminates against fault breccia or a fault.

Q. Now, Mr. Porter, I want to direct your attention to this Siligo tunnel. Have you carefully examined that tunnel?

(Testimony of J. M. Porter.)

A. Yes, I have. I have watched the progress of that very closely, too, as they were driving it.

Q. Before I go to that—in the upper workings of the Stewart, those that you were familiar with years ago in its early development what was the width of the vein; I do not mean first class ore, but the width of the vein as you found it up there?

A. In places it was about twenty-five feet wide, I think it would be. Close to twenty-five feet wide, possibly a little more than that in places, and many places not so much.

Q. Now then, if you will direct your attention to this Siligo tunnel and state to me what it shows.

A. The Siligo tunnel is driven along either on fault breccia or in vein matter. In places there is ore shown [1063—1019] in that. As they drove to the southwesterly a flat fault is encountered dipping to the westerly; it dips about 30 degrees, 33, something like that, and it has been called the Clancy fault. I have not seen any ore above that, but I have seen gouge very similar to that I find under it, and it does not seem to be displaced, and I do not know whether the flat fault cuts through the vein or the vein cuts through the flat fault. There is an upraise to the surface near L5232. I did not find any ore in that, but it might be called vein matter up to a few feet, so it is considerably disturbed, and not far from the surface. I would not say it is not vein matter; I rather think it is; there is no ore in it. There is driven along and in a fault, fault breccia, at L5082,—a crosscut is run southerly and cuts

(Testimony of J. M. Porter.)

into a caved portion apparently over a stope. That shows considerable vein matter, in fact, you might call it vein matter nearly to the Siligo tunnel. [1064—1020] Continuing easterly of L5427, the drifts bent a little over easterly, and in the fact of that is rather hard rock, but showing iron stains and limonite; then the crosscut was driven southeasterly through a portion of that hard matter, and is now in a broken mass that might be called fault breccia.

Q. Mr. Porter, you have referred to the termination of this vein upon its strike or onward course against the so-called Osborne fault which has been depicted by the wide red line marked on Plaintiff's Exhibit No. 3, which shows the course of that end of the vein. As you have observed that, what does that termination against the Osborne fault represent?

A. It would be the end of the vein as it is cut off by the Osborne fault—I say by the Osborne fault, but I don't know that it always reaches the Osborne fault. The Osborne fault is pretty well shown in the Fir tunnel in three places, and again on the 200, but on the upper levels I hardly think it has reached the Osborne fault, though it may be in the fault breccia along there.

Q. Mr. Porter, from your acquaintance with that property and your general familiarity with the veins, can you say whether [1065—1021] or not any portion of the apex of any of the ore bodies disclosed in the Ontario, as far as shown, lies along this edge of the vein which has been termed the apex by the

(Testimony of J. M. Porter.)

plaintiff in this case, and which is painted red on Exhibit 3, in its course northwesterly and southeasterly?

A. If any portion of the stopes lie under that.

Q. Is any portion of the apex of those ore bodies within that edge or end of the vein to which I called your attention? A. No, not at all.

Cross-examination.

(By Mr. DINES.)

Q. Mr. Porter, you don't mean to be understood by the Court as stating that the Ontario ore bodies are not a part of the same vein as the Stewart, do you?

A. No, I do not. I consider that they are part of the same vein on its strike. Of course it has been faulted in places, and they may be different segments of the same vein.

Q. You concede, do you, the first portion of the course of the apex as shown on Exhibit 3, north 30 east? A. That portion. [1066—1022]

Q. Yes.

A. That is about the course of that line down there.

Q. Now, do you not find the workings underneath the ground that you have studied a change of course as you go on into the middle portion or the south central portion of the Senator Stewart claim?

A. Yes, there is some change to the northeasterly on some of those levels.

Q. You have had a great deal of experience over a wide range of country in mining veins. Have you

(Testimony of J. M. Porter.)

not frequently found that veins may have one course in one portion or segment, and yet they will change and have all kinds of different shapes, sometimes in the shape of a horseshoe, sometimes a crescent or sometimes a curve?

A. Well, I haven't run across any horseshoe veins nor crescents, but I have found them where the course was somewhat curved. Sometimes you may have an intersection of veins, where one can go from one to the other in such a way that you would swing around like that.

Q. I am not speaking of the intersection of veins, but veins as they are discovered and lie in the earth; isn't it often the case that you find them curved?
[1067—1023]

A. Curved to some extent, yes, but hardly to the extent of a horseshoe.

Q. When you speak of the general course of the Stewart vein, therefore, as being north 30 degrees east, you are eliminating the very marked change in the course shown on your own exhibit, Defendants' Exhibit "B," in the various workings in the southeasterly portion of the property, are you not?

A. No, not entirely. Now—

Q. Are you eliminating it any?

Mr. GRAY.—Wait a minute. He started to explain.

Q. All right.

A. You take the No. 3 level, and it is pretty continuous, the course that I have given on the map would be about the general course, including that

(Testimony of J. M. Porter.)

portion. If you take a small portion at the north-easterly end, up on No. 1 and No. 2 you would find a divergence from that course.

Q. Well, up in the tunnel.

A. If you take the Stewart tunnel level from the extreme southerly point to the most northerly point where, according to Plaintiff's Exhibit No. 2—

Q. You have told us about that; I am asking you about [1068—1024] the body of the vein.

Mr. GRAY.—He has a right to explain his answer, and this thing of cutting the witness off won't aid counsel.

Mr. DINES.—I don't mean to cut him off, but I am asking about this portion here, and your Honor sees that he departs from that to the tunnel level, which he has already answered about. I pointed to this part here.

Mr. GRAY.—He answered you equivocally to that question—

Mr. DINES.—I think he has done just that.

Mr. GRAY.—Because it is a case where he could not say yes or no, although he did say he took that into consideration to a certain extent, and he certainly wants to explain.

The COURT.—I think the explanation has already extended over that lower Stewart tunnel level. He can confine his answer to the point to which counsel directs his questions.

Q. Now, in this level I show you here, which is marked on that exhibit as drift 205 east, and passing the raise which is designated 304 east as you follow

(Testimony of J. M. Porter.)

in this direction I will ask you if that does not show on a level for a number of hundred feet a marked change in the course from that that [1069—1025] you have given generally. A. Well—

Q. You can answer that yes or no, and then you can explain if you desire.

A. The portion from raise 211 east along that drift does show a divergence from the course given, but I have given an average course from the point at the foot of raise 218 east to the southerly part of it, so that while it may be a little more easterly, from this point to the foot of that raise, it would be a little more westerly than the course I have given.

Q. Take the next level to that, which is marked on that exhibit drift 105 east, and tell me from the point that is indicated in red near this southerly—or some little distance from the southerly side line of the Senator Stewart Fraction claim—it may be as far as one-third of the distance up, I should estimate, between the side lines, that point right there—if from there to here you do not find that change, and that you trace it along the red coloring on this exhibit.

A. Yes, you can pick out a portion on any one of these levels that divergence from the general course. From that point designated by you southerly on that vein it would not [1070—1026] be as much to the east as the average course that I have given, while above that point it would be a little more to the east than the course I gave.

Q. How much more to the east? Will you take

(Testimony of J. M. Porter.)

the course of that portion on that level between the points here as shown, from the top of raise 211 east first?

Mr. GRAY.—That manifestly bends right back again to the north.

Mr. DINES.—Well, I asked him about that.

The COURT.—Let Mr. Dines examine the witness. You will have a chance to re-examine him.

Mr. GRAY.—I don't want to. I want to call attention to the remarkable places where he wants him to take the course.

Mr. DINES.—His Honor sees it, and it is not for that purpose alone. I want the record to show that course there, that is all.

The COURT.—I think I appreciate your object.

Mr. DINES.—Not that I think your Honor needs any instruction in the A, B, C of mining by any means.

Q. I will ask you to take the course of drift No. 105 east from the point shown there and mark on the exhibit, to the top of raise No. 211 east. [1071—1027]

A. May I mark that point some way, to designate it?

Q. Certainly, if you desire.

A. I have marked it with a small "A" on Exhibit "B." That portion would be north 74 degrees east.

Q. Now then please take the portion from the top of raise 211 east to the small B which you have marked at the other crest shown in that drift.

Mr. GRAY.—A crest.

(Testimony of J. M. Porter.)

Q. (Continuing.) There is a turn there that Mr. Gray called attention to a minute ago.

A. That would be north 48 east.

Q. Now, from the point B that you have marked on there, to the face of the drift, as far as—

A. You mean to the crosscut from the foot to the hanging-wall.

Q. No, I am including the crosscut just as far as you know the vein to be.

A. Well, that is all a crosscut.

Q. I thought you had some vein material shown in the 218 east.

A. You could have vein matter in a crosscut across the vein. [1072—1028]

Q. Surely. Take the course as you have it there.

A. South 70 east.

Q. From B, though, to this point, the level from B to the face of the drift, the level is not, you think, along the course of the vein.

A. No, I don't think so; I think that is a crosscut from the footwall to the hanging of the vein, where it is cut off by the fault.

Q. It is in the vein, however.

A. Yes, I would call that in the vein. They are close in there, right in the breccia along that fault.

Q. Now, on drift No. 5 west and drift No. 5 east, taking the course of the working there.

A. That is, of the Stewart.

Q. Yes, about there. A. It is north 56 east.

Q. And the course of the Apex tunnel, which you call the Siligo tunnel.

(Testimony of J. M. Porter.)

Mr. GRAY.—Do you want the course of the tunnel, and not the course of the vein in it?

Mr. DINES.—Q. Well, I will limit it on your suggestion, Mr. Gray. Take the course of the tunnel, of the portion of the tunnel [1073—1029] where you find the vein material which you discovered.

Mr. GRAY.—Do you want the course of the vein, or the course of the tunnel?

Mr. DINES.—We are taking the course of the workings now. You have given us a good many courses of the workings.

A. North 65 east.

Q. Now, the workings that I have called attention to on the vein in the tunnel and in these various levels, do show a curving of the course of that vein or a change in the course of that vein from what it was down there crossing the southerly side line of the Senator Stewart Fraction, do they not?

A. A portion of it, yes, sir.

Q. Yes. And I will call your attention, please, to Plaintiff's Exhibit No. 2, and ask you if in the stopes themselves between those levels, you do not see the same change in the course of the vein.

A. Yes, the stopes follow about the course of that part of the vein. There is a broken—on the 100 foot level, the old Stewart tunnel level, rather, this part is broken apart from the others. This drift No. 5 west and drift No. 5 east is broken apart from the other. [1074—1030]

Q. It is broken from the other?

A. Well, it is broken from some place, it seems. I

(Testimony of J. M. Porter.)

won't say when, on this level, you are not within possibly 30 feet of where your maps have placed the Osborne fault.

Mr. GRAY.—What level is that?

A. That is on the old lower Stewart tunnel.

Q. At what point; indicate that, so the record will show it, the point 30 feet from the Osborne fault.

A. Well, it would be just about the figure 8 in L-5268; that is apparently a station in the raise, up to the Siligo tunnel, but the figures extend out so that the figure 8 comes right in the face of that drift.

Mr. DINES.—Q. Well, that is part of the sill floor of the stopes there, isn't it?

A. Yes, it is on the same level, so that those come together—

Q. Isn't that shown on Plaintiff's Exhibit 1?

A. Yes, that is shown on the map.

Q. As a part of the sill floor?

A. That is what I say, it is on the same level, at the raise within 30 feet of the Osborne fault, but if you are taking the course of the footwall of the vein it will [1075—1031] hardly be proper to swing over here and take a disconnected piece that could not be in there between that point and the Osborne fault.

Q. Do you call it a disconnected piece when we have shown you on Exhibit 2 all the stopes lying immediately above this, and extending, as the evidence shows, to within 15 feet of the Apex drift, and to a raise running from the stopes right up to the Apex drift?

A. You don't understand me. I say, it appears to

(Testimony of J. M. Porter.)

be a disconnected piece from that.

Mr. GRAY.—Q. This from that, what do you mean by that?

A. This part along drift No. 5 west and drift No. 5 east apparently has no connection by stope or otherwise, except in the crosscut, with that portion on the fault on the main level.

Mr. DINES.—Q. Well, you have been up in here yourself, haven't you?

A. I have been up in here, yes.

Q. And you know that the vein does extend up in here?

A. I know the vein extends up in here, but a few setts above a little raise is shown here without any station near it, probably I can tell you better over here. [1076—1032]

Q. Yes, it is designated on Exhibit 1.

A. The figures are so small that I can't make them out.

Q. I will get my glass and tell you what it is.

A. Extending up from the stopes near L 5528 on Exhibit "B," the raise extends up and connects with the top of an old stope, which apparently has extended upward from this drift No. 5 east and drift No. 5 west, but there is no connection that I have been able to find between this stope at that raise and the stope I was speaking about on the level of the Stewart tunnel further to the westward, and extending upward to the Siligo tunnel. The stope map shows that there is none.

Q. It shows that there is no actual work on it, but

(Testimony of J. M. Porter.)

you do not mean to be understood as expressing your opinion that the vein does not extend on up there, the vein itself; I am not speaking about commercial ore, but the vein.

A. I rather doubt it. I think there will be found to be some break in there. The stopes shown over drift No. 5 east and No. 5 west are higher than are shown over the northerly end of the main drift, than those over the tunnel.

Q. But you have the vein right under the Apex drift, extending out to a point above the raise that you testified to, the crooked raise?

A. It is not a question of extending easterly or westerly. [1077—1033] You have a point here—you have these stopes higher than they are there, with an ascending slope. If this continues on its course it would not connect with that.

Mr. GRAY.—From here to here and this and that, do you mean the stopes above drifts No. 5 east and No. 5 west?

A. The stopes above 5 east and 5 west, yes.

Q. And the vein as disclosed in the Stewart tunnel level over to the west?

A. At the northern end of the Stewart tunnel level.

Mr. GRAY.—Be a little more careful in giving those points.

By Mr. DINES.—Q. Have you followed up the raise from the top of the stopes above drift No. 4 east? A. I have.

Q. That is a vein, isn't it?

(Testimony of J. M. Porter.)

A. Yes, I took it to be. There are stopes on each side.

Q. And you think the vein is disclosed in the Apex drift? A. I am inclined to think so, yes.

Q. And you think the vein is disclosed in the up-raise No. 218 east? [1078—1034]

A. There is a vein disclosed alongside of that.

Q. And you think that the vein is terminated at the point immediately above raise 318 east?

A. No.

Q. In the drift, do you not, where it comes in contact with the Osborne fault?

A. No, I think it is terminated further back than that; I think it will go back here near station L 5361 on Exhibit "B," possibly L 5362.

Q. Now, you think the top of it is in there?

A. The end of it is, yes.

Q. And you think the present edge of the vein is there, don't you?

A. It is the terminal edge of that piece of vein.

Q. Do you think it is the terminal edge of the vein that is shown there?

A. Well, I would not call it an edge exactly.

Q. Well, call it anything you please. Is it a terminal portion of the vein there?

A. The vein would be something in the nature of a slab, and if you cut it off with the fault you would have the end of the vein here, you cannot say that it is an edge. [1079—1035] This would be the hanging-wall of that end of the vein, and this below would be the footwall of that vein, and the angle would rep-

(Testimony of J. M. Porter.)

resent the cutting off by the fault of the end of the vein.

Q. That is, as the vein is a solid body and is cut by a plane, you would not have the intersection of a line by a plane? A. It would be a segment of a cube.

Q. A segment of a cube that you do find there?

A. Yes.

Q. Now, is it the termination of the vein that you spoke of finding at the top of raise 218 east?

A. It would not be in the top—

Mr. GRAY.—He said before it was not there, I think; he said it was further back.

Q. I understood you located the top of the vein in this little working here called east No. 3 crosscut.

A. In the nature of a hanging-wall of a vein, being the top, you might call it the top if you like, but I call it the termination of the vein.

Q. You would prefer to call it the termination of what, of the hanging-wall? [1080—1036]

A. Of both walls, of the end of the vein, and that explains to some extent this curve northerly along that footwall, and when you get to this fault, evidently at the angle of the fault it makes a decided turn and it goes to the hanging-wall of the vein.

Q. Whatever you call it, it is the termination of the vein at that point, isn't it?

A. It is the termination of the vein at that point.

Q. And you cannot follow the vein higher up on a higher level than you have located it in this drift No. 5 east crosscut on Exhibit "B," is that right?

A. Not upward on the fault, no.

(Testimony of J. M. Porter.)

Q. You do find a vein in the Apex drift, do you not?

A. Yes, I consider that that is in the vein or very close to it.

Q. And you find the vein in the crosscut to the hanging-wall from that drift, don't you?

A. Yes, a vein appears in there.

Q. And that is at a distance of about 30 feet from the drift to its face? A. About that.

Q. Then the vein that you find in there is 30 feet wide [1081—1037] or more?

A. Probably on that hanging-wall side.

Q. Then, going on from the crosscut, do you find the vein in the drift to the point W prime, where the Osborne fault is disclosed or the gouge that you have spoken of?

Mr. GRAY.—He did not speak of the Osborne fault being disclosed there.

Mr. DINES.—No, he called it gouge. He said it had been called the Osborne fault, but it was gouge.

Mr. GRAY.—I don't think he said that.

A. There is considerable gouge and breccia along there in the Apex drift. There is no mineral shown right in the drift along there, but I believe that the drift is really in the brecciated portion along a fault upon which this vein has come up; the footwall of that vein.

Q. You don't think the vein can be identified any higher above that line; don't you think that is about the top of it?

A. Oh, it may run some little distance higher, but

(Testimony of J. M. Porter.)

it is near the surface there.

Q. And you think the top of the vein at that point away from the gouge that you speak of now, would be about as shown there in that Apex drift? [1082—1038]

A. Either along in that, or possibly up about where this apex east 3025 is marked; it may extend up that distance.

Q. At least you are satisfied that the apex of the vein at that part of the Apex drift is within the lines of the Senator Stewart Fraction claim?

A. Undoubtedly.

Q. And you identify that vein to the point where you find the gouge, do you not?

A. No, I don't, but it may extend out to that.

Q. Well, do you think the vein is further to the south from the point W prime as indicated here to the crosscut to the hanging-wall?

A. Well, it is probably on that dip, following the ascent from where the stope is over here, that it may run over the drift and be above the drift here. As I say about where that pencil marking "Apex, East 3025" is marked.

Q. How far to the east now do you identify it as apex; can you identify that vein from the workings as the apex?

A. In the neighborhood of this arrow marked "A." Now, possibly, by following these gouge seams that run out into the wall, more to the right, it will probably follow more northeasterly [1083—1039] than that seam.

(Testimony of J. M. Porter.)

Q. But there are no workings there to disclose that; don't you find vein material to the south of the gouge which is on the right wall of the drift as you go in, and after you have crossed the crosscut—passed easterly from the crosscut?

A. Yes, there is some material there that shows some iron stains, and there is also, beyond this fault in the face of this, there is more mineral stained rock.

Q. The full vein is not shown in the workings?

A. It does not show that it has ended at this fault.

Q. The fault seems to be its northern boundary; it goes up against the fault?

A. I am not so sure of that. I say there is mineralized matter beyond that fault in this face, the extreme easterly face of the northern portion of the Apex drift.

Q. Can you identify that mineralized matter in the extreme face of the drift as part of the apex of the vein, or about the apex of the vein?

A. Well, the apex of the vein, if this is a part of the vein, would be a little higher and possibly extend over that side line.

Q. You think it would go over that side line?
[1084—1040] A. Possibly.

Q. Well, there is a good deal of difference between possibly and probably.

A. Well, probably, I will say.

Q. You think it would probably do that?

A. Yes, I think that this drift has turned away from the main gouge it was following, and it will

(Testimony of J. M. Porter.)

probably follow over there, keeping more in that line.

Q. Then you don't think that the apex of the vein is terminated by the Osborne fault here at the point W prime?

A. No, I don't think that is the Osborne fault.

Q. So you don't think the apex of the vein is terminated there? A. I do think—

Q. You think that you may have the apex of a vein further on to the east and northeast than the point that you have put it on this Exhibit 1, do you?

A. Yes, I think it is quite probable.

Q. Now, when can you next identify any point of the vein as you go to the easterly, toward the easterly end line, the termination of the vein?

A. Well, as I have pointed out, about L 5262 or 2561 on [1085—1041] Defendants' Exhibit "B."

Q. That would be on Exhibit 1 that I am indicating to you about in here where I hold my pointer?

A. Will you let me see that station?

Q. Yes, I will get the glass and show you what the station is. 2549 is this one, and this is 2571 there, and that one where it is marked there is 2612.

A. Now, you might consider that the northeasterly termination of the vein on that level, of this portion of this vein, this segment of the vein.

Q. At point 2612 in the east No. 3 crosscut on Exhibit 1 you find the first point of termination of your vein, do you? You can use this glass and identify those points, if you are uncertain about them?

A. Your glass is hardly strong enough for me, but I will take your word for it.

(Testimony of J. M. Porter.)

Q. Well, that is given as the point by several witnesses.

A. Along the crosscut at that point I think they are cutting across the end of the vein along the fault, where it is terminated by the fault.

Q. You don't call the part of the vein that you see there apex. [1086—1042] A. No.

Q. But you admit that it is a terminal?

A. Yes, it is a terminal. You *can the* end of a house a terminal, but it is not the roof.

Q. Yes, it is a terminal, but you would be pretty certain if you had it up along the eaves, that it was not the foundation?

A. Well, it would not be the comb of the house.

Q. Well, it would not be the foundation. It would not be the bottom? A. No.

Q. Then, as you go along the apex from the point that you have designated—or going along the working from the point you have designated and just east of No. 3 crosscut, for what length do you find the vein exposed in there, how many feet approximately?

A. I find the ore exposed along in that neighborhood about forty feet.

Q. Now, the answer that you have given me to the last question where I was referring to it as the point disclosed there, applies to all of that 40 feet; you think that is a terminal edge of the vein? [1087—1043]

A. Yes, that is the end as it is cut off diagonally, the vein, from the foot to the hanging-wall is cut off by the course of that fault.

(Testimony of J. M. Porter.)

Q. Now, all of that is not against the fault, is it?

A. All of it might be against the fault; it is nearly to the fault; it is up against the breccia I should judge. Of course, it was not disclosed, exactly, but it has that appearance. The fault is further back in the footwall country.

Q. Isn't it a fact that of that 40 feet there was fully 25 feet that you could identify as being away from the fault?

A. I think it is all close along the breccia following the fault; it is up against the breccia.

Q. Then you go to the top of raise 218 east; do you find any portion of the vein showing there at the top of that raise?

A. No, I think that is in breccia. I think the vein, the division line—I followed that raise from the bottom to the top as it progressed, and up to this little elbow between the 100 and the Stewart tunnel level, you could follow ore, but from there on the ore apparently was more to the [1088—1044] left of the raise as you went upward, and it bears off to the left of the raise as you go up the raise, and you do not find it again till near the intersection of drift No. 5 east.

Q. At the terminal edge of the 40 feet you take the direction that way—if I can so describe it—the course of that 40 feet of the vein as shown in the working is about the same course as the working has, as it lies up above the breccia?

A. Just about. The course as shown—will you read that station number?

(Testimony of J. M. Porter.)

Q. Between No. 2612 and 2571, I think it is.

A. Well, I see well enough to verify that, but that would be approximately the course, I should say. Driving over further to the westward it was bearing more away from the fault, and the ore would show a little above.

Q. That would be from that point a distance of 40 feet where it is very nearly east?

A. Yes, the course of the fault would be very nearly east.

Q. Now, going from that point to the next point of the vein that you have shown, I understand you identify it at the bend where you say the raise No. 218 east, about near a point [1089—1045] midway of that raise, and you think the vein goes up in the direction that you have indicated from where you have seen it, up about to the point where that level intersects, is that right? A. Pretty nearly there.

Q. Now, designate that line with two letters on Exhibit No. 1, putting the letter "P" on each side, and draw a line between the middle point where the vein is shown in the apex and the point the furthest easterly that you can find it in the workings; mark it with the letter "P" to indicate that it is identified by Porter.

A. A blue dotted line, running from the point in the raise 218 east, about half way between the 100 foot level, and the old Stewart tunnel level, crossing to the point shown at station—what is that station?

Q. At 2571. A. All right, at 2571.

Q. Now, the portion of the vein that you have last

(Testimony of J. M. Porter.)

designated, do you admit that that is a terminal edge of the vein?

A. Yes, I think that it is the end of the vein in its northerly course. [1090—1046]

Q. Now, tracing from the point that you have indicated in the raise, about the middle of the raise between the two workings, and which you have designated by the broken line in blue, marked with the letter "P," please tell me whether or not the vein shows from that point in raise 218 east to the bottom of the raise.

A. With the exception of where this raise has passed through the old 100 foot level, and some timbers are shown there, and as it passes through that level, you can see the ore on the left-hand side or south side of this raise, you might say, from the 200 foot level up to that point, up to the point where this dotted blue line departs from the raise.

Q. What is the course of that portion of the vein as shown in that working; does it follow substantially the course of the raise?

A. Yes, that would be about the edge. There may be place, and there are places where there is a little ore shown at the right-hand side, but this is approximately the course of that end of the vein on its dip.

Q. Is the portion of the vein that you have seen in that raise a terminal edge of the vein? [1091—1047]

A. It is more than an edge; it is two edges, in the end of the vein.

Q. Well, I think you can answer that question as

(Testimony of J. M. Porter.)

you have answered this, can't you? Is the termination of the vein there? I am not asking you to commit yourself as to the apex.

A. It is the termination of the vein against the fault.

Q. Now, taking from the point that you have named, is the vein down on the 200 foot level from the point where the upraise 218 leaves it to its face?

A. No.

Q. How far can it be seen?

A. It is in fault breccia; the last ore I have seen would be about the foot of that raise. There was possibly a little thinning out in the bottom of the drift beyond the bottom of 218 east raise, but beyond that, out to the top of this raise 214 east it is in breccia.

Q. I call your attention to the 200 foot level, and that portion of it that is east of raise 218 east, and ask you where is the vein from that up; is it above it or below it? A. Above the drift? [1092—1048]

Q. Yes, is it above that level or below?

A. It is probably below it.

Q. What is there to show that it is below it?

A. There is another level, the 300 level down below it.

Q. Is it shown in raise 314 east as it follows that line?

A. Raise 314 east starts from a stope, a few floors above the 300 foot level, and the first 10 feet of that raise shows ore on the left-hand side as you ascend, but none on the right-hand side. That follows upward on a gouge on a dip of about 40 degrees for

(Testimony of J. M. Porter.)

about 55 feet; then it is straightened and goes up on a steeper dip, so that the average dip for the 85 feet would be about 45 or 50 degrees. Then it goes up vertically into this 200 foot level.

Q. Then you can identify the vein in that portion of the raise that you have referred to to the south-east of the bottom of raise 218 east?

A. To the southeast of the bottom, yes. I can see the vein up for ten feet from the bottom of the raise.

Q. And it has been stoped through there, hasn't it?

A. Stoped part of the way up, and then the raise runs from the stope. [1093—1049]

Q. Will you designate that raise on Exhibit 2 that you refer to where you have seen the vein a portion of it? Exhibit 2 is the stope map. I think there are no points designated. A. No, no points.

Q. Well, you may be able to put a mark on that with a pencil that will show about where you found it there.

A. It is at a point about 350 southerly from the northeasterly corner of the Senator Stewart Fraction to the foot of that raise; the center of it would be about 10 or 15 feet westerly of the line.

Q. Are you able to identify the vein, the part of the vein disclosed there as a terminal edge?

A. In the same way that the other is a terminal edge.

Q. Now, you were asked about the early days of the workings in the Senator Stewart Fraction. Calling your attention to Exhibit No. 2, I will ask you if drift No. 1 east, that was the one that you first re-

(Testimony of J. M. Porter.)

ferred to, I believe, as being on the vein, extending some feet—

A. That is on a practically vertical fault.

Q. That is a vertical fault, is it?

A. Yes, or it might—it is mineralized to some extent. [1094—1050]

Q. But no stoping was done on it?

A. There may possibly have been a little stoping done on that.

Q. You are not positive about that?

A. I am of the impression that there was some stoping done on it.

Q. Now, drift No. 2 east is on the same level, is it?

A. Yes, the same level.

Q. Does that show anything or cut any vein?

A. That is caved; I cannot get into that. That was run since my connection with the mine.

Q. Now, you have the old lower Stewart tunnel going through there, part of it marked “Deering crosscut”?

A. Yes.

Q. Does that show any vein between the point here marked 35 level, and the termination of the Deering crosscut?

A. That is very closely lagged. I don’t know of any vein matter in there between those points you mention, but there is a two-compartment raise about—

Mr. GREY.—It is called raise B, I think.

WITNESS.—It is not marked, but it is about 40 feet northerly of L5312 on Defendants’ Exhibit “B,” which runs [1095—1051] up some 40 or 50

(Testimony of J. M. Porter.)

feet into a stope, and the stope is connected with the one marked as 35 level.

Q. Do you know whether that raise was on a vein or not? A. No, I don't know.

Q. But you do know that there was stoping done on what was known as the 35 level?

A. Yes, I know that, and that considerable ore was taken out.

Q. Why was it called a crosscut in through here, the Deering crosscut?

A. It must be crosscutting the vein; it is crosscutting the formation.

Q. A crosscut is a working where you are crosscutting the formation looking for your vein?

A. Yes, that was what they were driving the Deering crosscut for—to shorten up their haul. The tunnel was driven more southerly until the vein was intersected as I described in my direct examination, then it was drifted upon northerly, and then this Deering crosscut was driven in and cut the vein, and some places—about the middle of this drift they drifted southerly on the vein to make the connection. I don't remember just where the connection was made. I was in there soon after it was made on this level. [1096—1052]

Q. I will ask you if the connection between the crosscut and the vein was not made at the foot of drift No. 4 about in there.

A. No, I think not; I am under the impression that we came out to the south from this Deering

(Testimony of J. M. Porter.)

crosscut before we crawled through the hole into the other drift.

Q. Now, going down on the old lower Stewart tunnel, I will ask you if that is not, from the point where the three compartment or raise—what is that?

A. There are two chutes and a manway.

Q. The chutes and the manway indicated up near the 35 foot level on Exhibit 1, if that is not absolutely through barren quartzite? A. I think it is.

Q. And all down through here until it cuts the vein to which you refer down here in the neighborhood of the Samuels raise?

A. Well, it is considerably to the south and east of the Samuels raise.

Q. The fact is that your old upper tunnel was driven along, trying to pick up that vein, and never struck the vein until they came down to the point of intersection here [1097—1053] where the 85 foot level and the 145 foot level were joined together, isn't that right?

A. That is right. They got the vein and found some native silver and crystallized lead, just about where this working here crosses the tunnel, something in the neighborhood of 150 feet from the mouth of the upper Stewart tunnel.

Q. And then they went back on it? A. Yes.

Q. Trying to still pick up that vein, looking for the vein?

A. No, no; they were drifting on the vein then.

Q. It is a drift on the vein; that is correct. After they encountered a vein at this point they drifted

(Testimony of J. M. Porter.)

back this way on their vein?

A. Yes, and also southerly.

Q. Why did they stop at that northerly face?

A. There was no reason, except that the ore was not high grade enough to be profitable.

Q. Do you know what that face shows; did you ever see that northerly face where it crosses the southerly side line?

A. I have seen it lots of time. I don't know whether I made any notes of that. [1098—1054]

Q. Did you make any notes of the showing in that vein?

A. Well, I will see if I can find some note of that.
(By Mr. GRAY.)

Q. Do you refer to the old notes that you made in 1901 and 1902? A. To the old notes, yes.

(By Mr. DINES.)

Q. Well, do you remember what it shows now; have you been in there? A. I have been in there.

Q. Is it accessible?

A. I am of the impression that it shows some low grade ore in there now.

Q. Is the 145 foot level on a vein?

A. Well, that is not accessible now to any great extent, but I am inclined to think that that was on this Stewart vein on which this vein shown just to the north of the intersection of the upper Stewart tunnel with the vein, was extended upward.

Q. There is a vein shown at this point at the 145 foot level near the winze that has a deep dip of about 65 to 70 degrees, is there not?

(Testimony of J. M. Porter.)

A. The upward extension of that was on a dip of about 55 to 60, the raise, and just underneath the level [1099—1055] it showed a little bit steeper, and there is an intersection of two veins, one being at an angle of about 45 above the level, dipping up underneath this steeper one, and below that they are both a little steeper, and that fault showed in one sett down there that I have seen recently.

Q. Those veins had different dips?

A. Different dips.

Q. One of them flat and the other steep?

A. Yes.

Q. And the steeper one varied from 65 to vertical?

A. You might say from 55 to nearly vertical.

Q. Now, this portion of the tunnel, is that a cross-cut? A. That is a crosscut.

Q. Nothing was encountered in there. What is the length of that crosscut?

A. Well, how much of it?

Q. Well, taking it from—directly under the tunnel. Q. Yes.

A. To what point; to the intersection of the vein?

Q. Yes, to the intersection of the vein first encountered.

A. That would be about 360 feet. [1100—1056]

Q. And you have the old lower Stewart tunnel and the crosscut up to the north? A. Yes.

Q. And this portion of the tunnel and crosscut to the south? A. Yes.

Q. So that there is a considerable distance of

(Testimony of J. M. Porter.)

country in between the veins that you refer to on the west and the veins on the east?

A. There is a considerable distance. There is also a difference in the elevation that has quite a good deal to do with it.

Q. You know that there is a fault that some have called here the Clancy fault, that is shown at the point W 2 prime, and it seems to cut through that country and cut off the veins that you have referred to as showing in the westerly portion?

A. I don't know that there is a fault in there—I know that there is a fault called the Clancy fault, and I have seen it a number of times, but I don't know if it cuts the vein off or not.

Q. You know that in these long crosscuts they did [1101—1057] not pick up the vein?

A. That means nothing. It is so much higher, so far above the upper Stewart tunnel level that it would carry it away over this way, and it would be in the footwall country of the vein.

Q. But you know that there has been no physical connection opened up between the veins on the west and the veins on the east?

A. That is true, and I am surprised that there has not been more prospecting done there.

Q. Now, do you not think that the prospecting was done when the tunnels were driven across there as crosscuts, and when the tunnel for a great portion of its length in going to the south was a crosscut, and when there were branches driven off from that, or crosscuts, and when the upper Stewart tunnel level

(Testimony of J. M. Porter.)

is a crosscut crossing the country and picking up no vein, don't you think that is a good deal of prospecting?

A. Not at all. It doesn't matter how much you run around in the footwall country of the vein, if you do not go to where you would naturally expect the vein to be on its downward projection, it is not prospecting.

Q. It means ill-directed prospecting? [1102—1058] A. Very ill directed.

Q. You were not in charge when that was done, were you? A. No.

Q. Nor was the plaintiff in this case?

A. Well, the plaintiff in this case drove part of this work, but most of it—

Q. Most of it was done by the predecessors of the Stewart Mining Company, in working the property, wasn't it?

A. Yes, they did crosscut far enough here to get under to get the vein where it would be on its downward projection, to get to where it should be on that level.

Mr. GRAY.—Q. Where do you mean, up here on the Stewart tunnel level?

A. I say that that work was done, that he was speaking of, that it had not been driven far enough to the easterly to catch the vein where it would be found on its downward projection from the upper works.

Mr. DINES.—Q. And there has not been and is not enough development on that portion, I mean the

(Testimony of J. M. Porter.)

western portion of these claims, to enable you or any other mining engineer to identify and correlate the veins on either side of that territory, isn't that right? [1103—1059]

A. Not positively. If you will come to the model I think I can explain the showing there. You will observe that, drawing downward from this level, this work is all underneath where this vein should be on its projection from the upper Stewart tunnel to the old lower Stewart tunnel. Now, this Clancy fault is shown about the top of this—what is the name of that jack-knife raise?

Mr. GRAY.— It is called No. 7.

WITNESS.—(Continuing.) No. 7 raise, but that is to the easterly of our line as drawn downward, and there may be some displacement as shown on this cross-section which is marked Defendants' Exhibit "J." Now, all this work the counsel is inquiring about would be entirely under that vein and would not develop anything one way or the other.

Mr. DINES.—Q. But you have, though, a developed portion of the vein that you have seen, and you know now—you can now see it on these exhibits and in the ground, can you not?

A. In my estimation there is two developed portions of that vein, Mr. Dines.

Q. Now, it is true, that, if a vein—if it be, and I am asking you to assume no responsibility for the statement—if it be that the apex of a vein is in the form of a [1104—1060] crescent and with a bend, that you may have underlying portions of the vein

(Testimony of J. M. Porter.)

as it descends into the earth, lying under the same apex from both points at which you could go to in a downward course?

A. If you take, for *examine*, a funnel, you can start from any place on the edge, and you can go down that way.

Q. And you have seen development of that kind, haven't you?

A. No, I haven't seen any funnel development in mining.

Q. You have never seen two apexes covering the same body of ore beneath?

A. I have seen claims located on the apexes of veins so that their extralateral rights conflicted; their lines conflicted on their downward course.

Q. You have seen that? A. Frequently.

Redirect Examination.

(By Mr. GRAY.)

Q. Mr. Porter, I just wanted to ask you as to one matter that I think you can illustrate to the Court upon the model. There have been a great many questions directed to the course of the vein in this drift No. 5. Perhaps on [1105—1061] the model you can indicate to the Court. That, as I understand it, has been testified to by the witnesses for the plaintiff, that there is a roll in the vein there, and by the witnesses for the defendant that there is a fault there. You might explain to the Court why you get that course along that drift in places which does not in any sense represent the course of the vein. [1106—1062]

(Testimony of J. M. Porter.)

A. If that is a part of the vein there, it is, I imagine, a segregated portion. I have not seen that fold. I have been upon this raise and seen the top of the old stope, but the folding down here I don't recognize. Now, in the glass model the section 11 comes within a few feet of the top of that raise, and instead of showing the roll, it shows a continuous dip downward from a point projected up the incline portion said to be the Osborne fault, and does not show that roll at all in that section.

Q. On the Stewart tunnel level, then, am I to understand you that the course of the vein is disclosed by that long working along the footwall here from the bottom of raise 408?

A. In my opinion that is the course of the vein disclosed there for a distance of about 900 feet, and reaches to within about thirty feet of where plaintiff's map shows the Osborne fault to be.

Q. Mr. Porter, that is the highest level along which there has been any considerable working by the Stewart Mining Company other than the upper Stewart tunnel? A. It is.

Q. What does the lowest working, the Fir tunnel [1107—1063] level, show with reference to the course of the vein; what is shown?

A. The course on the Fir tunnel would be north 21 east for a distance of about 300 feet.

Witness excused.

(A recess was here taken.) [1108—1064]

Mr. FOLSOM.—Let the record show that F. W. Galloway and Sidney Schontz were each sworn and

(Testimony of J. M. Porter.)

qualified to testify in this case, and that each testified substantially as did W. H. Herrick.

Mr. GUNN.—That is correct.

Mr. FOLSOM.—That will be satisfactory, your Honor.

The COURT.—Yes, sir.

Mr. FOLSOM.—This is simply for the purpose of diminishing the size of the record in so far as the weight of the evidence is concerned instead of calling them.

Mr. GUNN.—We stipulate that the record may so show.

Mr. FOLSOM.—There is another matter I neglected. I neglected to offer the exhibit that was identified in connection with Mr. Hershey's testimony this morning, the cross-section; it was merely identified but was not formally admitted. I ask that that be admitted.

The COURT.—What is the exhibit?

Mr. FOLSOM.—I think it is Exhibit "M."

The COURT.—It will be admitted.

The said cross-section was thereupon marked Defendants' Exhibit "M," admitted. [1109—1065]

Mr. GUNN.—I am not so sure, may it please the Court, that the exhibits used in the cross-examination of Mr. Hershey were offered, and if agreeable I would like to have them considered as in evidence.

The COURT.—They will be considered in evidence.

Mr. GUNN.—If any be omitted, the record may show that whatever was referred to in the cross-

examination and identified are admitted.

The COURT.—They are all admitted. [1110—1066]

[Testimony of Fred Searles, Jr., for Defendants.]

FRED SEARLES, Jr., called as a witness on behalf of the defendant, being first duly sworn, testified as follows:

Direct Examination.

(By Mr. FOLSOM.)

Q. State your full name to the reporter.

A. Fred Searles, Jr.

Q. Where do you reside?

A. I reside at Goldfield, Nevada.

Q. What is your occupation?

A. That of a geologist.

Q. What present position do you hold?

A. I am geologist for the Goldfield Consolidated Mining Company.

Q. Is that a producing mining company?

A. Yes, sir. The mine has produced about twenty-six million dollars in the last three years.

Q. I will ask you what school, if any, you graduated from—technical school, I mean.

A. I graduated from the University of California in the department of mining and geology. [1111—1067]

Q. What experience have you had since your graduation to fit you to testify in this case?

A. Since graduation I occupied a position as assistant instructor in geology and mineralogy in the University of California for about a year. I have since that time been engaged in the examination of

(Testimony of Fred Searles, Jr.)

mines, and mining properties throughout all of the western States and for the past year have been associated with the Goldfield Consolidated Mines Company.

Q. I will ask you if you have ever had an opportunity to study the veins in the Yreka mining district in this county?

A. I spent three months in the study of those veins in connection with the litigation between the Bunker Hill and Sullivan Mining & Concentrating Company and the Federal Mining & Smelting Company about two years ago. Since that time I have spent altogether about a month or six weeks in the examination of the veins in that district.

Q. Are you familiar with the ore bodies in the Ontario and in the Stewart mines? A. I am, yes, sir.

Q. Beginning with the ores in the Ontario, describe [1112—1068] what you saw briefly. Perhaps you had better use the model for that purpose.

A. Referring to the model, Defendants' Exhibit "L," I believe it is, I have been through and observed all of the openings within the lines of the Stewart and Ontario claims that are now accessible. In the course of observing those workings one of the things that I did was to map the vein along all of the drifts that are at present accessible and that are upon the vein, that is, to note the relation of the vein to those drifts. Upon the third level of the mine the vein is practically as shown in red upon the model Defendants' Exhibit "L." That is also true on the second level and of all the levels.

(Testimony of Fred Searles, Jr.)

Q. I will ask you where the top of the Frank ore body is, top or apex of the Frank ore body?

A. I was just going to make one more statement.

Q. Just go on with your statement.

A. The mapping of the veins with relation to those levels exhibits the general course or strike of the vein. The three positions in the mine where that vein can be mapped most continuously without any interruption of any fault or magnitude worth noticing is upon the third level [1113—1069] from the Osborne fault to the top of the Gray ore body. I have mapped the vein throughout that distance except that in a portion of the drift to which I now point, being southwesterly of the shaft upon the third level, the level is somewhat caved and I am not sure of the exact position of the vein. The strike of the vein as evidenced by its relation to that level is north 32 degrees east. Mapping the vein similarly on the second level from the point at which it begins to exhibit a marked change in strike due to its proximity to the so-called Osborne fault to the face of that level, or, I would say to a point where it is continued, is somewhat interrupted near the bottom of the raise under the stope which terminates in its upward course at raise 223 west. That distance on the vein is not much interrupted in strike by any considerable fault, and the strike of that portion is north 42 degrees east. Taking the vein on the old lower Stewart tunnel level from its southern extremity to the bottom of raise 4 east, which is the longest distance which the vein is uninterrupted in the mine, the

(Testimony of Fred Searles, Jr.)

strike is about north 33 degrees east. All of these distances represent lengths along the strike of the course of that vein from six to nine hundred [1114—1070] feet. Taking the mean or average of these three strikes, I find the strike or general course of that vein, general strike or course of that vein, to be north 35 degrees east. That is the best strike that I can give that vein, the best general strike as determined in the most logical way that I can see to determine it.

Now, as to the ore bodies within the limits of the Ontario claim. The Gray ore body is developed in the Gray drift for a distance of about 320 feet, and there has a strike of approximately of north 30 degrees east, and dips about 45 degrees to the southeast.

The Frank ore body has a strike of about north 38 degrees east, and a similar dip.

These ore bodies are separated by a fault which has been referred to as the No. 11 fault. If I were searching for the top of those ore bodies I should look in a direction about up the dip, and I would therefore suppose the top or apex of those ore bodies to be somewhere to the northwest partly within the lines of the Senator Stewart claim.

Q. Mr. Searles, referring now to the Gray ore body, I will ask you if it has an upper terminal edge against a [1115—1071] fault?

A. It has. The No. 11 fault before referred to cuts off the Gray ore body on its upward extension lying between the Frank and the Gray ore bodies

(Testimony of Fred Searles, Jr.)

somewhat in the position in which I hold this paper (indicating).

Q. I will ask you if you can follow from that upper terminal edge in the direction of the Ontario west end line northerly and remain in the vein?

A. You cannot.

Q. I will ask you if you can follow on the upper terminal edge of the vein in the Gray northeasterly in the direction of the Ontario west end line, if you will be following downward or upward?

A. Please state that over again.

Q. If you follow from the upper terminal edge of the Gray ore body in the direction of the Ontario west end line in a northeasterly direction, whether you would be going downward or upward?

A. If you stay within the vein you will be going downward.

Q. I will ask you if there is any mineralization in the No. 11 fault above the vein as disclosed in the Gray [1116—1072] stopes; I do not mean any mineralization, but any ore above the line which terminates upward against the fault.

A. There is none.

Q. Have you a cross-section that illustrates—a cross-section made through the west end line of the Ontario claim—I will show you a map first, and ask that this be marked Defendants' Exhibit "Q" for Identification.

The *same* cross-section was thereupon marked Defendant's Exhibit "Q" for Identification.

A. I refer to Defendant's Exhibit "Q" so marked

(Testimony of Fred Searles, Jr.)

for identification. This map exhibits the detail of the structure of the Ontario vein with relation to the claim lines which have just been called attention to. The red line between the letters "B" and "C" represent very approximately the intersection of the Gray ore body on its upward extension and the point at which it is cut off by the No. 11 fault or the line at which it is cut off. I will explain that it is not absolutely—that the intersection as it is in the ground may not absolutely coincide with this line, for the reason that there is rather a small number of points for which the actual intersection [1117—1073] is visible within the claim; however, there is no question but what the intersection exists and that it is within a few feet of the red line as portrayed upon the Defendants' Exhibit "Q."

The line of intersection extends from the point "C" which is on the northwesterly end line of the Ontario claim, diagonally across that claim and passes out of the claim at the point "B" on the southerly side line.

Q. I will ask you if you have a cross-section through the west end line of the Ontario?

A. Yes, sir.

Mr. FOLSOM.—Mark it Defendants' Exhibit "R" for Identification.

The said cross-section was thereupon marked Defendants' Exhibit "RW" for Identification.

Q. I show you Defendants' Exhibit "R" for Identification and ask you who prepared that?

A. I did.

(Testimony of Fred Searles, Jr.)

Q. Tell the Court what it shows.

A. The cross-section X-XI on Defendants' Exhibit "R" is the projection or is the picture of a vertical plane [1118—1074] passed through the northwesterly end line of the Ontario claim and extended beyond to a point X prime, having been started at the point X as shown upon this map, Defendants' Exhibit "Q."

Q. What is the blue marked No. 11 fault? Is that the same fault that has been referred to heretofore by you in the Ontario?

A. It is. The blue line labeled No. 11 fault upon this cross-section represents the trace of that fault upon the vertical plane of the section. Similarly the red line labeled Stewart vein represents the trace of the Stewart vein upon this section. I will explain that as there is some lack of information about the position of this line of intersection between the No. 11 fault and the vein there is also some lack of data as regards the exact position of the Stewart vein on this section. That is to say, there are gaps between which we do not know the exact position of the vein because it has not been developed, but we do know by short projections that the vein exists there and that it exists within a few feet of the line as it is shown upon this cross-section.

Q. You have something marked on the cross-section [1119—1075] "major fault," which fault is that?

A. The major fault is the fault which has been referred to in this case as the Osborne fault. The

(Testimony of Fred Searles, Jr.)

cross-section exhibits the upward termination of the Stewart vein against the No. 11 fault, its course downward from that termination in a line parallel to the northwesterly end line of the Ontario claim until it reaches finally its downward termination against the so-called Osborne fault. I might further say that any cross-section passed parallel to the one here exhibited will show a similar downward course from the intersection of the No. 11 fault to the downward termination of the vein by the major or Osborne fault.

Mr. FOLSOM.—Take the witness.

Cross-examination.

(By Mr. GUNN.)

Q. What year did you graduate, Mr. Searles?

A. 1909.

Q. You spoke about taking some courses of this vein and making an average of the courses?

A. Yes, sir.

Q. You took a course on the different levels as shown [1120—1076] upon this model?

A. I did not include in that average all of the courses of all of the levels as shown upon that model, no.

Q. What levels did you take to get your average course as you gave it?

A. The third level, second level and lower Stewart tunnel level, choosing those because they exhibit the vein for the longest distance upon its strike.

Q. Step over here to the model a moment. I understood you to say that you took the course on the

(Testimony of Fred Searles, Jr.)

third level up to a point where the vein was influenced by the fault; is that correct? A. Yes, sir.

Q. Mark that out on the model, will you please?

A. I took it about to the bottom of raise 312 east.

Q. About 312 east. And the same is true with reference to No. 2 level? A. Yes, sir.

Q. Point out from what point you took your course on the No. 2 level?

A. I took it from about the bottom of the raise which is nearest the label D 205 east. [1121—1077]

Q. And on the lower Stewart tunnel level what point did you take your courses?

A. I took the course from the southern extremity of that level to the bottom of raise 4 east.

Q. Point it out on the model, please.

A. The southern extremity, the bottom of the irregular raise, to the bottom of raise 4 east (indicating on model).

Q. Have you taken any courses from the end of the No. 3 level to the line where that level would intersect the southerly side line of the Senator Stewart Fraction? A. I have not.

Q. Can you take those courses and give it to us?

A. I can. Will you read that question again, please? (Question read.) I find that the third level intersects the side line of the Senator Stewart Fraction at more than one place.

Q. Which course did you take in taking your general course?

A. I took the course through those levels which course intersected that side line of the Senator Stew-

(Testimony of Fred Searles, Jr.)

art Fraction at the point where a line would intersect it drawn [1122—1078] from the southern extremity of drift 313 west to the bottom of the raise which I mentioned, being raise 312 east.

Q. Then you took one general course through between those two points? A. I did, yes, sir.

Q. You did not take any courses along the line of the level and make an average of those to get your average course? A. I did not, no, sir.

Q. Well, are you able to give us the course from the end of the 300 level to the crossing of the southerly side line of the Senator Stewart Fraction?

A. To which crossing—crossing by what?

Q. Well, where the vein crosses? A. Yes, sir.

Mr. GRAY.—Do you want it from the end of the level or from the end of the vein?

Mr. GUNN.—From the end of the vein.

A. There might be two courses from the end of the vein on the—that is, the northeasterly end of the Stewart vein to the point where it crosses the side line of the Senator Stewart Fraction claim according as to whether the course [1123—1079] is taken at the point where the hanging-wall of the vein crosses or at the point where the footwall crosses.

Q. Where did you take your course, on the points where the hanging-wall of the vein crosses or the point where the footwall crosses?

A. I took from the end of drift 314 west to the bottom of raise 312 east, both of which points are at places where the vein is not excessively wide and both of which points are approximately at the center

(Testimony of Fred Searles, Jr.)

of the vein or center of the ore streak.

Q. Well, take your course then just along the hanging-wall and show the general course from the hanging-wall at the point where you commenced to the hanging-wall of the vein as it crosses the southerly side line of the Senator Stewart Fraction.

A. That course is about north $42\frac{1}{2}$ degrees east.

Q. Now, take it along the footwall.

A. The course of a line joining the extremity, northeastern extremity of the Stewart vein on the third level, the point where the footwall of that vein crosses the side line of the Senator Stewart Fraction is about north 52 degrees east. [1124—1080]

Q. North 52 degrees east. Now, passing to the next level above, and give us the course from the end of the vein as shown in that level with the southerly side line of the Senator Stewart Fraction'.

A. The direction of a line joining the end, the northeastern end of the Stewart vein, on the second level to the point where that vein crosses the side line of the Senator Stewart Fraction is about north 59 degrees east.

Q. Now, pass to the next level above and give us the same information.

A. I have no information about the position of the vein on the next level above.

Q. Weren't you able to obtain that information from your observations in the ground?

A. No, sir.

Q. Why not?

(Testimony of Fred Searles, Jr.)

A. Because the level was at all times inaccessible to me.

Q. Now, pass to the next level which you took.

A. That is the old lower Stewart tunnel level?

Q. Yes, sir.

A. What do you want? [1125—1081]

A. The same information.

A. The course of a line joining the extremity of the vein on the old lower Stewart tunnel level, the northeastern extremity to a point where that vein crosses underneath the side line of the Senator Stewart Fraction claim is north 69 degrees east.

Q. Now, are you able to give us the average strike according to the courses you have just taken?

A. Certainly not.

Mr. GRAY.—I submit that cannot be done unless you take the vein where it is not faulted on the Stewart tunnel level.

A. I certainly am not. No one of those lines that I have given represents the strike of the vein.

Mr. GUNN.—Q. Does it not represent the strike of the vein within the surface boundaries of the Senator Stewart Fraction claim? A. I think not.

Q. Supposing that you had no development of this claim to the south of the Senator Stewart Fraction claim, what would you say then with reference to those courses that you have just given us representing the strike of the [1126—1082] vein?

A. I should think that they did not represent the strike of the vein.

Q. Why not?

(Testimony of Fred Searles, Jr.)

A. I will explain that, if I may. I would like a piece of paper. (Witness draws diagram.) I believe that if there were a vein or any other stratum of earth faulted so that it had the position shown on this diagram, being continuous from "A" to "B" then displaced by a fault, and again continuing from "C" to "D," that no geologist in determining the strike of that vein would take the course of a line from "A" to "D." Now, if this vein and the material within which it existed instead of being brittle was somewhat plastic so that the vein instead of being broken up in a sharp line had some such condition as from "A" to the point "G" and was then deformed by the fault to the point "E" and began again at "F" and curved around to "H" and then began its normal strike, I do not believe that any geologist would take the line from "A" to "E" as representing the strike of that vein any more than he would have taken the line from "A" to "D," and if erosion or any other force should remove [1127—1083] the portion of the vein lying to the right of the irregular line I have drawn, I do not believe myself that the line joining the points "A" and "E" should be taken to represent the strike of that vein.

Q. What fault are you referring to that you find in those workings?

The COURT.—If you want to use that or preserve it in the record, it had better be marked.

Mr. GRAY.—Just mark that. We want to keep it.

The said drawing was thereupon marked Defend-

(Testimony of Fred Searles, Jr.)

ants' Exhibit "S," for Identification.

Mr. GUNN.—Q. What fault were you referring to, Mr. Searles, in those workings that you think would influence the measurements to such an extent that the courses you have given us would not be the correct courses from a geological standpoint?

A. I refer to the fault that has been spoken of as the Osborne fault.

Q. Then your opinion is that from a geological standpoint in taking the course of this vein in the Senator Stewart Fraction claim that you should not take into consideration [1128—1084] the turning or bending of the vein as caused by the fault?

A. If I were determining the strike of that vein and recognized the fact as I do recognize it that that vein is twisted locally by the presence of that fault, I should not consider a line joining those two points that you gave as indicating the strike of the vein.

Q. Suppose there had been no faulting there, but that condition was found in the ground and there was nothing to show that it had been caused by any fault, what course would you take to show the strike of that vein?

A. If I could not determine any condition as having disturbed the position of the vein after its formation, I would take the course joining the two points on the vein most distant.

Q. Then ignoring the faulting and influencing of the vein by the fault, is it not true that the courses that you have given me are the correct courses of that vein within the surface boundaries of the Sen-

(Testimony of Fred Searles, Jr.)

ator Stewart Fraction claim?

A. If you ignore the fault, that is not true. If you ignore the fault, the courses as given would not be as they are; the vein would not be so bent. [1129—1085]

Q. That is to say, you are taking into consideration that the bending was occasioned by the fault?

A. Yes, sir; that is what I mean.

Q. I am asking you to omit that from your consideration and assume that this condition exists in the ground and that there has been no faulting movement and there has been nothing to which you could attribute that bending.

Mr. GRAY.—Wait a minute. Do you also assume that the vein does not continue—

Mr. GUNN.—Just a moment. I think that the witness understands me, Mr. Gray.

Mr. GRAY.—I do not know.

Mr. GUNN.—You can conduct the examination after I am through.

The COURT.—You can examine him after the cross-examination.

A. You also assume that the vein terminates at the line that is there given.

Mr. GUNN.—Q. I am assuming that the vein has a termination at the points you have taken.

A. What is the question?

Q. Read the question. (Question read.) [1130—1086]

A. If I understand it right, you wish me to assume that there is a vein which has a bent course there

(Testimony of Fred Searles, Jr.)

and terminates along a certain line and yet that there is no apparent cause for that, either the bending or the termination.

Q. Yes.

A. Thereby assuming a case entirely different from that which exists in the ground.

Q. All right, we will assume a case entirely different.

A. If I could not see any reason whatever for that bend, I would take a line joining the points most distant from each other, that is, assuming also that the relative exposures, the relative lengths of exposures on the bent portion and on the normal portion have the same relative lengths that they have in this case.

Q. Then, in taking the course of any vein you study the geological causes for the position of the vein that it occupies and take those into consideration? A. To a certain extent I do, yes, sir.

Q. Now to what extent?

A. In so far as there are abnormal variations in the [1131—1087] course of a vein which are plainly attributable to an external cause, I would eliminate those irregularities or abnormal courses from the interpretation of the true course of that vein.

Q. Now, you have spoken of the No. 11 fault.

A. I have.

Q. In your opinion is the Gray ore body and the Frank ore body a part of the same vein?

A. In my opinion they are.

(Testimony of Fred Searles, Jr.)

Q. Yes. And upon what do you base that opinion?

A. I base that opinion upon the general similar character of the two ore bodies and the fact that in certain parts of the vein the displacement between those ore bodies is small and of such nature that it seems to me quite likely that they were originally parts of one vein that had been disturbed by some motion.

Q. In other words, Mr. Searles, there is evidence in the higher workings of the Stewart showing that the displacement has not intercepted the ore bodies; is not that true?

A. Has not separated them to any considerable distance.

Q. Yes, sir; so there is evidence to you as a [1132—1088] geologist that those were once the same vein? A. There is evidence, yes, sir.

Q. Now, what if any evidence have you of any vein that you can correlate with the Stewart vein beyond the Osborne fault? A. None whatever.

Q. Then is it not a fact—

A. (Interrupting.) Beyond, you mean to the end of the footwall?

Q. Yes, sir, A. None whatever.

Q. Now, will you mark on Plaintiff's Exhibit 1 the line of the cross-section shown upon your Exhibit "R"? A. It is already marked in a general way.

Q. Just mark it with a dotted line.

A. It is approximately in that line as shown by the dotted blue line marked X-X1.

(Testimony of Fred Searles, Jr.)

Q. Why did you place your cross-section in that direction?

A. Because I followed the end line of the Ontario plane.

Q. What is the angle of intersection with the end [1133—1089] line of the Senator Stewart Fraction as you have taken your cross-section?

Mr. GRAY.—The courses are right here on the map, Exhibit “B.”

A. Did you say the end line, Mr. Gunn?

Mr. GUNN.—Yes, sir, with the easterly end line.

A. It makes an angle of about 24 degrees.

Q. Now, from the point where your cross-section intersects what is designated on the map as 409 crosscut you have projected the vein, have you not?

A. I have.

Q. In a northeasterly direction.

A. Yes, sir. No, I have not projected it in a northeasterly direction. I projected it in a southeasterly direction.

Q. Well, all right. What is the distance of your projection?

A. It is in the neighborhood of about forty feet.

Q. About forty feet? A. Yes, sir.

Q. Well, what data did you obtain to locate the vein?

A. I projected it downward upon its dip from the [1134—1090] position in the Fir tunnel.

Q. Whereabouts in the Fir tunnel did you find the vein which you took?

A. Part of the vein which I project was from

(Testimony of Fred Searles, Jr.)

about L5103 to L5151, the projection being this way on the dip. (Indicating.)

The COURT.—Mr. Folsom, do you want to introduce that plan map?

Mr. FOLSOM.—Yes, sir, I do, both the plan map and the cross-section. I offer them in evidence.

The COURT.—They will be admitted.

Thereupon the said plan map and cross-section were marked Defendants' Exhibit "Q" and Defendants' Exhibit "R," admitted.

Thereupon an adjournment was taken until tomorrow, Wednesday, January 15, 1913, at 10:00 o'clock A. M. [1135—1091]

10 A. M., Wednesday, January 15, 1913.

FRED SEARLES, Jr., resumed the stand for further

Cross-examination.

(By Mr. GUNN.)

Q. Directing your attention to this cross-section, Mr. Searles, if you had extended your cross-section through the southwest corner of the Ontario claim, you would have shown the Frank ore body as well as the Gray ore body, would you not?

Q. Yes, sir.

Q. And what relation would the Frank ore body bear with reference to the vein as disclosed upon this cross-section if the cross-section had been extended so as to show the Frank ore body?

A. It would bear no relation to it as exhibited in the section.

(Testimony of Fred Searles, Jr.)

Q. Where would the cross-section, as it cut the Frank ore body, be shown upon that cross-section?

A. It would be shown standing above the No. 11 fault. The displacement along the fault as exhibited in this cross-section is about 160 feet. [1136—1092]

Q. Can you indicate on this cross-section about where the Frank ore body would appear?

A. Yes. The section would cut the Frank ore body in some such position as shown by the pencil lines above the No. 11 fault.

Q. Just make a mark there on the line that you have put on there so as to designate it in the record, Mr. Searles?

A. I have made a letter as the point "F."

Q. Now, I understand that the vein as disclosed here, near what you have designated as the major fault is a projection?

A. It is a projection, yes.

Q. You did not intend this connection between the vein and the fault to represent a picture of anything that you have seen in the ground, did you?

A. Why, I think it represents a picture in a way; I have not seen the exact point at which the vein intersects the fault.

Q. Well, you have not seen the relation of the vein to the fault at the place of intersection?

A. I have not at that place.

Q. Now, is it not true, Mr. Searles, that a cross-section [1137—1093] taken through these workings between a point below any level and a point

(Testimony of Fred Searles, Jr.)

above a level would show an upper portion of the vein?

A. If the level were upon the vein, a section through the level at any direction other than the strike of the vein would exhibit the inclination of the vein.

Q. That is to say, at any point in these workings, if you take a cross-section from a point below the level to a point above the level, assuming the level is on the vein, would it show the upward course of the vein?

A. That is true. For instance, if a cross-section were taken from a point where the line which is called the apex crosses the end line of the Stewart Fraction, to any part of an area near where this apex under the No. 11 fault crosses the Ontario end line, it would show an upward course from that Stewart so-called apex to the Ontario.

Q. And the same with reference to the No. 3 level?

Mr. DINES.—I don't think you understood his answer, Mr. Gunn.

Mr. GUNN.—May I have the answer read.

(Answer read.)

Q. Do I understand you to say that it would show an [1138—1094] upward course for the entire distance?

A. No, sir. I mean that the elevation, however, at the apex under the No. 11 fault would be higher than the elevation at which the so-called apex crosses the end line of the Senator Stewart Fraction.

(Testimony of Fred Searles, Jr.)

Q. But you don't mean to say that such a cross-section would not show a downward course from the apex for a distance? A. Which apex?

Q. Well, the crossing of what you spoke of as the apex crossing the easterly end line of the Senator Stewart Fraction?

A. Yes, except that I have not spoken of that as an apex.

Q. Well, from that point, taking a cross-section such as you have along the lines you have indicated, you don't pretend to say but what that would show a downward course of the vein for a distance?

A. It would for a short distance.

Q. If you should take a cross-section from a point below No. 3 level to a point above No. 3 level it would show an upward course of the vein, would it not? [1139—1095]

A. Yes.

Redirect Examination.

(By Mr. FOLSOM.)

Q. Mr. Searles, Mr. Gunn has asked you if there was any ore or vein beyond the major fault that could be correlated with this which he called the apex against the major fault. I will ask you whether there is any comparison between the apex against the No. 11 fault which you have described and the apex against the Clancy fault.

A. I should say that the upper edge of the vein under the No. 11 fault compared very favorably with the so-called apex of the vein under the Clancy fault, and contrasted very favorably with the so-

(Testimony of Fred Searles, Jr.)

called apex, which is the edge of the vein against the Osborne fault. Within the lines of the Ontario claim there is a very considerable displacement between the Gray stope and the Frank stope, and as far as can be ascertained within the lines of that claim, the upward termination of the Gray ore body against the No. 11 fault is a final termination, and there is no doubt at all in my mind that the displacement upon the No. 11 fault in that claim is a greater displacement than has occurred on the Clancy fault. My reason for that belief is in a small part [1140—1096] a comparison of the gouge or trace which the two faults have left in the ground. The No. 11 fault at all points that I have observed it carries from three to five inches of a very good plastic, tenacious, streaky gouge, which is usually indicative of a considerable movement, and the movement as indicated by the character of that gouge is at least as good as that on the Clancy fault. But a much better reason for believing that the movement upon the No. 11 fault is greater than that upon the Clancy fault is exhibited by the model. We have in the upper Stewart tunnel a development upon the vein very similar to the Stewart vein for a distance of three or four hundred feet, and I have no doubt that that is the same vein as has been called the Stewart vein as it exists throughout the major part of these workings. I think that that is largely a matter of common sense, that this mountain is not full of veins; there are not numerous veins ramifying through this mountain. There *and* thousands and thousands of workings that

(Testimony of Fred Searles, Jr.)

cross them, and these mountains do not exhibit many veins, and when I find a short distance above the Stewart vein a vein similar to it, having a parallel strike and a similar dip as shown by the model, there is very, very little doubt in [1141—1097] my mind that that vein is the same as that in the rest of the Stewart workings. The only difference that I can see between the two faults is that the Ontario Company have the continuation of the ore beyond the No. 11 fault, whereas the Stewart Company have not been so fortunate in regard to the ore above the Clancy fault. The apparent ease with which the Frank body was found after the Gray ore body had been cut off is largely due to the intimate knowledge of the geological structures that this company have had, the Ontario Company were able to take advantage of, and there is very little doubt in my mind that if Mr. Hershey had the direction of the same amount of work as has disclosed the Frank ore body, that he would discover a continuous vein, or discover the exact position to which the vein could be broken, so that it could be positively correlated with the vein in the upper Stewart tunnel.

Q. I will ask you, Mr. Searles, if there is any part of the Stewart vein northeast of the part where it last appears on the Fir tunnel level? A. There is.

Q. Where?

A. If you take a line anywhere through the central portion [1142—1098] of this mine, which is parallel in direction to the direction of the dip, you can proceed from that line further upon the strike of the

(Testimony of Fred Searles, Jr.)

vein at the elevation of the Siligo tunnel than you can at the elevation of the Fir tunnel.

Q. Why did you make the cross-section so as to show so little of the Stewart workings?

A. I made the cross-section in the position that I did, because it was on the Ontario end line and showed the position of the vein in a plane, the trace of which is coincident with the Ontario end line. I took that position rather than a parallel position further to the southeast, because that section passes through more workings. I could have taken any section parallel, within the Ontario, showing a similar downward course from the apex under the No. 11 fault, to the downward termination of the vein against the major fault, and I could also have taken a parallel section within the Stewart workings, which would show more workings upon the section and therefore give the exact position of the vein in greater detail than it is exhibited by this section, Defendants' Exhibit "R," but as regards this particular apex, I was concerned only with the ground under the Ontario claim. [1143—1099]

Mr. FOLSOM.—I desire to ask one question which I am not sure is redirect.

Mr. GUNN.—I doubt if a lot of this is really redirect, but it is all right.

Mr. FOLSOM.—Well, I will ask leave to ask this question.

Mr. GUNN.—All right.

Q. Calling your attention to the apex map, Plaintiff's Exhibit No. 3, I will ask you this question;

(Testimony of Fred Searles, Jr.)

would the angle in a horizontal plane between the strike of the vein and the line of intersection between the vein and the fault be different when measured in the plane of the vein?

A. It would be different. Do you wish me to explain that?

Q. Yes. Explain that.

A. (Drawing diagram marked Defendants' Exhibit "T.") If you had a given direction of a course of a line on the horizontal, and that intersected another line upon the horizontal, as for instance the line AB intersects the line BD at some angle, which I have here taken as 70 degrees—this is purely a supposititious case—a vertical plane passed through that line would of course have a strike equal to the course of the horizontal projection of the line [1144—1100] —I will call this inclined plane as pictured here H—the vertical plane through the line AB will intersect the plane H through the line AD. I understand the question is to exhibit the relation between the angle alpha, which would be the angle as measured upon the inclined plane between the strike of that plane and the trace upon that plane of a vertical plane through the line AB to the angle made by the strike of that plane on the horizontal projection. I don't know whether it will be necessary to go through all the algebra and trigonometry here, or simply to state the relation of that angle alpha to the angle of 70 degrees.

Q. Oh, just state it.

A. The relation of the angle alpha to the angle of

(Testimony of Fred Searles, Jr.)

70 degrees is such that the tangent of alpha is equal to the tangent of 70 degrees divided by the cosine of the angle delta, which is the dip of the inclined plane. That can be mathematically demonstrated, if you care to have it done.

Q. No, it is not necessary.

A. But certain inferences may be drawn from that formula, namely, that the angle in the plane between the strike of the plane and the projection of the line or trace of the line upon that plane will be larger than the angle in [1145—1101] the horizontal plane, because the cosine of an angle is always less than one. But that will be true as long as the angle is an acute angle, because when an angle becomes an obtuse angle, the tangent becomes negative; so, so long as the angle is acute, the angle measured in the incline plane will be greater than the angle as measured in the horizontal plane, but as that angle approaches 90 degrees, as it becomes close to 90 degrees, the difference between the angle in the horizontal plane and the angle in the inclined plane will be less, because as the angle approaches 90 degrees, the tangents of both angles become very great, and the difference made by dividing by the cosine of the dip will become smaller and smaller, until as the angle reaches 90 degrees, the tangent of both angles is infinity, and the division by the cosine amounts to nothing, and the angle is unchanged from the horizontal plane with the inclined plane; that is to say, that if the angle is less than 90 degrees in the horizontal plane, it will always be less than 90 degrees in the inclined plane,

(Testimony of Fred Searles, Jr.)

that the projection can never change it past the 90 degree mark. I think that is obvious, that in an inclined plane, if you have one line in the direction of the strike of the plane, and the other in the direction [1146—1102] of the dip, that that angle will be the same projected into the horizontal plane as it is in the inclined plane, but in any acute angle the angle would be greater as measured in the inclined plane than it would in the horizontal. However, that can never be changed past the 90 degree mark. [1147—1103]

Recross-examination.

(By Mr. GUNN.)

Q. With reference to this No. 11 fault, you have positive evidence in the workings, have you not, that the sections of the vein on both sides of that fault are one and part of the same vein?

A. I do not think there is positive evidence. I believe very strongly that they are the same, but I would be unwilling to go on record that it is an undoubted fact. There is one reason for that that has not been exactly brought out; the displacement upon the No. 11 fault measured upon a horizontal plane at the elevation of the Silver King tunnel is about 140 feet; the corresponding displacement as measured upon the elevation of the No. 3 tunnel is 180 feet; in other words, the displacement seems to be becoming larger as you go upward in the mine. As you follow out upon the second level you come to a fault that is not parallel either in strike or dip to the No. 11 fault and corresponds somewhat with its position and is prob-

(Testimony of Fred Searles, Jr.)

ably a representative part of the movement upon the No. 11 fault, but a strange thing about that fault is that the displacement upon it as shown in here is very small, [1148—1104] it is only 130 feet, as I remember. Now, I have difficulty in seeing how the displacement upon the Silver King level is 140 feet and becomes 180 feet on the third level and then decreases again to only about thirty feet a short distance above it, so I cannot conceive of how the motion on that fault could have taken place to bring that about, so I arrive at the conclusion that the fault divides somewhere between the second and third levels, and that the larger part of the movement upon that fault is done up there by a fault which is shown in the second level in the neighborhood of D 205 west; and that is a crooked fault and the movement upon it is in such a way that the portion of the block on the hanging-wall of that fault slid down on the foot-wall of the fault, so that the movement was nearly parallel to the strike of the vein at that point; and still I believe that there is a very considerable movement on that fault and in the upper level is to be correlated with what has been called the Deering fault, and I recognize in the neighborhood of the level D 205 west a faulted condition of the vein; there some ore strung that fault, so that in a casual observation of that level it might not be noticed readily that the vein in that level [1149—1105] is displaced, but I believe it is displaced and I believe there is a continuous gap from the gap shown on the Silver King tunnel level to the gap as exhibited on the stope map

(Testimony of Fred Searles, Jr.)

in Defendants' Exhibit 2 on the old lower Stewart tunnel.

Q. I believe you have stated on your direct examination that those ore bodies, the Frank and the Gray and the May, are one and the same vein?

A. I believe they are.

Q. Isn't it true that along the line of that fault above the 200 level you can follow on continuous ore from one side to the other?

A. I have not been able to do so.

Q. Have you been in there looking at it?

A. Yes, sir, in all of its accessible portions.

Q. Isn't it true that there has been stoping right *right* through that level—

A. Yes, sir.

Q. On ore?

A. There is a jog in the stopes above the second level there, and at all times that I have been in there it was impossible to pass from one side of that level to the other on ore. However, I believe the dislocation in there is [1150—1106] very slight.

Q. Have you the same evidence that the vein shown in the upper Stewart tunnel is the continuation of the Stewart vein as you have the vein on both sides of the No. 11 fault is the same vein?

A. I have just as good evidence in my mind.

Q. That is, in your mind, from the standpoint of a geologist?

A. Yes, sir.

Q. What have you to say as to this vein disclosed on the old lower Stewart tunnel here immediately under the word "Senator" on this model being a part of the Stewart vein?

(Testimony of Fred Searles, Jr.)

A. I believe it is a part of the Stewart vein.

Q. You believe it is a part of the Stewart vein?

A. Yes, sir.

Q. And that vein has a strike nearly east and west, has it not?

A. It is very difficult to take the strike of that vein on account of its extreme flatness.

Q. As it shows on this model you would assume it to be east and west, wouldn't you, or easterly?

A. I might if I had not been in the ground, but I [1151—1107] have been in the ground and I know that the vein is very flat, and I can conceive readily of the possibility of the strike being at a right angle to the workings shown in there.

Q. Did you take any strikes of that vein in the ground?

A. I could not say as to that. I will look in my notes. (After examining notes.) I have several observations as to the dip, but none as to the strike because any observation that I have been able to make in the strike would be very inaccurate due to the extreme flatness of the vein.

Mr. GUNN.—That is all.

Witness excused.

Mr. GRAY.—One matter I desire to call attention to. I do not know that the tracing we have used so frequently here has ever been marked.

The said tracing was thereupon offered and received in evidence without objection and marked Defendants' Exhibit "V," admitted. [1152—1108]

[Testimony of Stanly A. Easton for Defendants.]

STANLY A. EASTON, called as a witness on behalf of the defendants, being first duly sworn, testified as follows:

Direct Examination.

(By Mr. GRAY.)

Q. Will you state your name, residence and your occupation?

A. My name is Stanly A. Easton; I reside at Kellogg, Idaho; and I am manager of the Ontario Mining Company.

Q. How long have you followed the occupation of miner, Mr. Easton, a practical miner?

A. I have been engaged solely in the occupation of mining for twenty-two years.

Q. During that time have you operated and engaged in operating producing mines? A. I have.

Q. And developing properties?

A. Both producing and properties in the stage of development work.

Q. Are you acquainted with the Ontario mine in the Yreka mining district? [1153—1109]

A. I first became acquainted and interested in the Ontario property in July, 1905.

Q. State your acquaintance with it from that time on.

A. It has been continuous, and under my direction has been done nearly all of the development work on the property. Prior to my connection with it there had been several hundred feet of development work

(Testimony of Stanly A. Easton.)

in the upper levels of the mine performed by the very early operators, and everything else on the property has been done under my personal direction.

Q. You say you became acquainted with it in 1905, became interested in it at that time. Did *you any* work toward the development of that property at that time, and if so, approximately what was it?

A. The development of the property was continuous until the winter of 1907. Our operations did not result in our producing any profitable ore, and the general depression of business in the winter of 1907 and the fact that further development work in depth would require the outlay of a large sum of money required us to close the property for a period of four years. Mr. Bourne, the owner of the property, was reluctant to advance further money.
[1154—1110]

Mr. DINES.—We submit, your Honor, that this is absolutely immaterial here to the questions in issue.

The COURT.—I think so.

Mr. GRAY.—It is simply in connection with this property.

Mr. DINES.—Yes, but he is talking about other things, and we move to strike it, all as to the financial depression and Mr. Bourne not being willing to advance further money. What have we to do with that?

Mr. GRAY.—Your Honor can see in just a moment; I assure you it is material and competent, and if I do not show it—

The COURT.—Yes, I will reserve the motion to

(Testimony of Stanly A. Easton.)

strike to see whether it is material.

Mr. GRAY.—Yes, sir.

A. And I thereupon negotiated with him to arrange some scheme by which I would not only direct the development of the mine but also arrange the financial resources to pursue its development work, and these negotiations were rather expensive and resulted in his giving me a lease of the Ontario and the Ontario Fraction claims. One of the considerations of this lease was my relinquishment of my [1155—1111] equitable interests in the properties which up to that time I had held.

Mr. DINES.—We object to that also and move to strike it out, as on its face immaterial and cannot be made material.

Mr. GRAY.—His Honor suggested that he will entertain your motion later.

Mr. DINES.—I understand.

The COURT.—I will still hear further. Your motion is in abeyance, Mr. Dines.

Mr. DINES.—Yes.

Mr. GRAY.—Q. When was that?

A. The lease was executed in April, 1911.

Q. What did you do, then, with the lease?

A. I immediately transferred this lease to the Ontario Mining Company. The enterprise required vastly greater resources than I had at my personal command, and I formed the Ontario Mining Company and transferred the lease to this corporation, and interested a number of my friends in the financing of the corporation, which was accomplished and

(Testimony of Stanly A. Easton.)

plans for developing the property were then considered.

Q. What plans did you first consider in connection [1156—1112] with its development, and how came you to develop it in the manner in which it has been developed through the Silver King tunnel?

A. The former development of the property was all from Deadwood gulch.

Q. That is where, Mr. Easton?

A. On the model it can be shown as this slope of the mountain. The former development work was done by an adit run in the position which I hold my pointer, from the lower side line of the Ontario claim and it was the lowest level from which the ground could be reached from the Ontario surface and from Deadwood gulch. While we were discussing and planning how further to develop the ground I was in attendance in this court at a hearing in which the Stewart Mining Company and the Coeur d'Alene Development Company were concerned, and from the maps placed in exhibit in that hearing I for the first time learned that the face of the Silver King tunnel extension was in a few feet of the Ontario lines. It shows on this map here, Mr. Gray, at a distance of some 160 feet. The Silver King tunnel was quite inaccessible, caved and closed, and that was the first time I learned it had been extended to that point. Thereupon I negotiated with [1157—1113] the Coeur d'Alene Development Company for the use of that tunnel to reach the Ontario ground, and an arrangement was concluded with

(Testimony of Stanly A. Easton.)

them and we began to clean out and repair the tunnel which was caved from its portal. In due time we reached the face of the Silver King tunnel extension which is beneath the surface of the Senator Stewart claim and as a result of various negotiations we paid ten thousand dollars to the Stewart Mining Company for a half interest in the Silver King tunnel beneath their surface.

Q. You say "we"?

A. Well, I was going to add that five thousand dollars of this sum was paid by the Ontario Mining Company and five thousand by the Bunker Hill & Sullivan Company who desired to have a joint interest in this working which reached ground contiguous to the Ontario which was the property of that company. Thereupon the extension of this tunnel was begun at the face of the Silver King tunnel; a crosscut was extended into the Ontario ground and the Gray ore body—I say "Gray ore body," Gray vein, because it was not commercial ore at that point—was cut October 4, 1911. [1158—1114]

Q. Just stop there a moment. Prior to acquiring by purchase from the Stewart Mining Company a joint interest in so much of the tunnel as lay beneath the Senator Stewart claim had any objection been made by the Stewart Mining Company, and did the Stewart Mining Company or its officers know or were they advised of the work which was being done there?

A. They inspected the work one time during my absence.

(Testimony of Stanly A. Easton.)

Q. "They"; whom do you mean?

A. The Stewart Mining Company's officials; and they subsequently directed an objection against the Coeur d'Alene Development Company, but not against the Ontario Company.

Q. Now, you may proceed from the time you struck the Gray vein.

Mr. DINES.—One moment, your Honor. I wish to suggest to the Court that it is evident that if this has any purpose at all, it is an effort to inject into this case what has never been pleaded; that is, an estoppel *in pais*.

Mr. GRAY.—Oh, no.

Mr. DINES.—If it is not that, it is nothing whatever; it is absolutely immaterial on its face, if it is not in [1159—1115] support of an estoppel, it is absolutely immaterial for any purpose; it throws no light upon the issues, and the purpose of showing that he purchased an interest in that tunnel from the Stewart Mining Company can only be directed to one thing, and that is, an estoppel, and that is not pleaded; otherwise it is immaterial.

Mr. GRAY.—No.

The COURT.—It will not be considered as an estoppel, because it could not be. It may be considered as immaterial, but I think I will listen to the merits of this case. Mr. Dines, I think it is about as immaterial as the other matter to which you objected and moved to strike out.

Mr. GRAY.—If your Honor pleases, the purpose of introducing this testimony, I may fairly say to

(Testimony of Stanly A. Easton.)

you at this time, was that counsel for the plaintiff have seen fit to introduce upon this stand a witness whose testimony literally read might indicate that Mr. Easton and the Ontario Mining Company had slipped in there in the night-time and had surreptitiously removed ore from some ground under the cover of darkness, and I will proceed to show that they have been fully aware at all times of the operations, and that the inferences which were sought to be [1160—1116] interjected into this case by that testimony which I did not consider material particularly at the time, are unfair and unjust and untrue.

Mr. GUNN.—Of course, the rule is well settled that the introduction of immaterial testimony does not authorize the introduction of further immaterial testimony to rebut it.

The COURT.—That is very true.

Mr. GUNN.—And Mr. Gray now takes the position that the testimony that we introduced which was introduced without objection is wholly immaterial.

Mr. GRAY.—I did not say it was not proper, but I was quite willing to concede to your better judgment as to what was material testimony and concluded that instead of objecting to it we would meet it.

Mr. FOLSOM.—It all goes to the wilfulness of the trespass.

The COURT.—I will hear it.

Mr. GRAY.—You may proceed, Mr. Easton.

A. The fissure which later developed into the

(Testimony of Stanly A. Easton.)

Gray ore body was cut on the 4th of October and our crosscut was continued. We did not at that time recognize the importance [1161—1117] of this fissure and we continued the crosscut and also drifted upon this fissure which at the point cut carried a small amount of ore only. The ore improved steadily as we went south until at the northern portion of what is now the Gray stope we found the commercial ore, and production began sometime in December. The Stewart people, I will say, asked me to inspect their mine and their officials were in this tunnel. Mr. Beaudry, accompanied by myself, inspected this discovery less a month after it was made, and in return I was with him through the Stewart mine sometime early in the following December, and at all times was there an interchange of hospitality in that particular; they had been in our property and we had been in theirs and the work continued. We found the Gray ore terminating to the south on the Silver King tunnel level, and by cross-cutting in the footwall encountered the Frank ore body, from both of which stopes production has continued until now. We furthermore sank the Ontario shaft; we crosscut on the two lower levels, and spent not less than—

Mr. GUNN.—We object to the amount that has been spent in this matter. That is absolutely immaterial. [1162—1118]

The COURT.—I do not think that is material.

Mr. GUNN.—It is going clearly beyond the bounds indicated by the Court or by counsel.

(Testimony of Stanly A. Easton.)

Mr. GRAY.—All right.

Q. Mr. Easton, you said something about visiting the Stewart mine and inspecting it and interchanging maps. Were you furnished with a map by Mr. Bacon at that time of their works directed toward the southerly—

A. The first time I visited the Stewart mine in recent years in October of 1911, some two weeks after we cut the Gray ore, I had not been in the Stewart mine before that since 1908. About February of 1912 it appeared to me that the Stewart Company were extending a level, a drift, into our ground, and I called upon Mr. Bacon and suggested that he show me his maps. After some discussion he produced them and it appeared that their 300-foot level was being extended well beneath the Ontario surface and not upon any vein. I remonstrated with him against this trespass and suggested that an interchange of maps would possibly avoid any legal action by either party, particularly by the Ontario Company, to resist this trespass by their workings into our ground. Some days later he [1163—1119] called at my office with a map showing the workings of the Stewart Company adjacent to the Ontario, and on the same day I visited the Stewart mine with him and we went out on the 300-foot level to the point beneath the surface of the Ontario and at a point some 200 feet from any property of the Stewart Mining Company, and I told him that it would be necessary for him to stop that work. We finally agreed that if he would turn that

(Testimony of Stanly A. Easton.)

tunnel back into his own ground again that no action would be taken by us, we would permit him to pass through there and have a right of way, but he should continue it no longer in our ground. The tunnel was turned as shown upon this map—

Q. As W 318 crosscut?

A. Yes, sir, W318 crosscut, back into the—here (indicating) was the point visited by Mr. Bacon and myself February 21, 1912, and this is the course of the drift subsequently taken by him back into his own ground. We had prior to that time exposed the Frank ore body and from our maps the Stewart Company were apprised of the location of this ore body and they extended this “D” 305 west drift and cut this ore body on that 300 foot level. I saw for the first time last October when maps were introduced [1164—1120] at the injunction hearing—

Q. That is, October, 1912?

A. 1912,—that in addition to these workings a crosscut had been extended by the Senator Stewart Company unknown to me and through barren ground intersecting the vein above the Gray stope.

Q. In the Ontario ground?

A. Yes; some 150 feet south of the Ontario north-west end line well beneath the surface of the Ontario, and a raise had been extended by the Stewart Company on this vein for upwards of sixty feet, and that a considerable amount of ore was removed by the Stewart Company from this raise and milled—shipped. This crosscut was subsequently tightly closed by lagging, although the timbers were not

(Testimony of Stanly A. Easton.)

broken down, it was completely filled with muck and dirt, and Mr. Porter and I located it by a careful inspection and it was subsequently opened.

Q. And you found it extended over and had some ore within the Ontario above the Gray?

A. Above the Gray stope. The raise itself was inaccessible.

Q. Where you had disclosed ore by your workings? [1165—1121]

A. Where we had previously disclosed ore by our Silver King tunnel workings and our Gray stope.

Q. Yes, sir. Mr. Easton, at the time you visited the Stewart after having acquired this Silver King tunnel for this Ontario Company did you go to the south faces of the several levels that were open and accessible?

A. On my first visit the 300 foot level was not open. This shaft from the 200 foot level was in process of sinking. I went to the south face of the 200, and subsequently went to the 300 foot level and to the south face of the 300 which was then about at that point.

Q. That is the point, station 5186?

A. I think that is L5125, somewheres in there. That face was not being advanced at that time, was in barren ground, and there was no working nearer our development than at least 300 feet horizontally and over 100 feet vertically, and that working did not show any ore so that our development here was in no wise dependent upon any information that was received from the development in the Stewart

(Testimony of Stanly A. Easton.)

mine either directly or indirectly. [1166—1122]

Q. After having opened up the Gray ore body, you then opened up the May and Frank ore bodies?

A. Yes, and from them other work has been carried on on a rather broad scale. We have done development work for many years ahead, and the whole operation has been conducted as a permanent and substantial enterprise.

Mr. DINES.—We move that that portion of the witness' testimony in relation to the plaintiff having trespassed, including the witness' designation of that as a trespass, and all references to it, be stricken from the record on the ground that it injects here issues that cannot be adjudicated in this case and that do not relate to any issues in this case.

Plaintiff further moves to strike out the witness' opinion and conclusions that their company has been conducted on a broad basis as a permanent substantial enterprise, if I quote him correctly. Your Honor will recall the expression, I object on the ground that it is merely a conclusion, and states no facts.

Mr. GRAY.—I have no objection to the last part being stricken out, but to the first motion I do object, and I want to again recall your Honor's attention to the attempt [1167—1123] which the plaintiff made in the early part of this case to prejudice your Honor by producing Mr. Bacon on the stand and having him testify that the developments in the Ontario were absolutely without his knowledge or his permission, and to suggest to your Honor that the

(Testimony of Stanly A. Easton.)

development of these ore bodies was because of certain workings in the Stewart property which therefore the Stewart Company had run out in that direction. Now, all of this goes to show that, on the contrary, these ore bodies were developed by the independent judgment and investigation and expenditure of the defendant company, and that if there has been any information gained by either, it has been the information which the Stewart Company acquired from the development of these ore bodies, and that prior to their development they had not extended their work over in that neighborhood or for a long distance therefrom, and that at their southerly faces those works showed nothing but ore of no quality or value. I think that, they having opened up this question, we are perfectly justified and within the law in meeting it.

Mr. DINES.—May it please the Court, I think that counsel has indulged somewhat in imagination as to the testimony in this case— [1168—1124]

The COURT.—I think, Mr. Dines, that we do not need any further argument. I am inclined to sustain your motion as to the matter of trespass, but I shall let the narrative stand as to any work that was done.

Mr. GUNN.—I object to the insinuation of counsel that the testimony of Mr. Bacon was introduced here for the purpose of prejudicing the mind of this Court.

The COURT.—You don't need to bother about that. It did not prejudice my mind anyway.

(Testimony of Stanly A. Easton.)

Mr. DINES.—We further suggest that it is shown by the witness' testimony that when the vein was cut and ore was opened there, the Stewart Company did not know that the Ontario was mining, that he complained against the Coeur d'Alene Development Company, thinking that that company was doing this work. That is the best possible evidence that we did not know of it.

The COURT.—I don't need any more argument.

Q. At that time when they made the objection to the Coeur d'Alene Company, had this work extended to the vein?

A. It had just gone from the Silver King tunnel level; that was long prior to cutting the ore.

Q. And that objection was obviated by the payment of ten thousand dollars to the Stewart Mining Company? [1169—1125] A. Yes, sir.

Mr. DINES.—We have a motion also directed to that which I don't think your Honor has passed upon. We move to exclude from the record all evidence as to the payment of money, of ten thousand dollars for the tunnel.

(Motion denied. Plaintiff excepted.)

Q. Mr. Easton, you have been familiar with the development of the Ontario mine and the ore bodies within that mine from the time the Ontario Company commenced its work?

A. In great detail, yes, sir.

Q. It has all been under your supervision?

A. Yes, sir.

Q. Will you state to the Court, from your ac-

(Testimony of Stanly A. Easton.)

quaintance with the defendants' ore bodies within the Ontario mine and your familiarity with them, what the strike and dip of those veins or ore bodies, as disclosed by your workings, is?

A. The strike of the Gray ore body going south, which was the direction followed in the development, was constantly south 30 degrees west. The May ore body is south 32 or 34 degrees west and the Frank ore body is south 38 degrees west. The dip in all cases being at right angles to the strike was at an angle of 45 degrees from a right angle, more or [1170—1126] less.

Q. To the southeast? A. To the southeast.

Cross-examination.

(By Mr. GUNN.)

Q. Mr. Easton, you spoke of having a lease of the Ontario, which you transferred? A. I did.

Q. Have you that lease with you? A. No, sir.

Mr. GUNN.—We would like to have an inspection of that lease.

Mr. FOLSOM.—It is on record downstairs.

Mr. GUNN.—Oh, very well.

Q. Now, with reference to this Silver King tunnel, is it not a fact that you entered into the Silver King tunnel beneath the surface of the Stewart claim and commenced the extension of that tunnel without the consent of the Stewart Mining Company?

A. Yes.

Q. You have directed all of the operations of the Ontario [1171—1127] Company? A. I have.

Q. You have been in full charge? A. I have.

(Testimony of Stanly A. Easton.)

Q. You have given instructions where to mine ore and how to mine ore? A. Yes.

Q. And have you had any meetings of your board of directors with reference to the mining operations in the ground, and have those had anything to do with the mining operations in the ground?

A. I don't know as I understand the question. We have meetings occasionally, but I do not consult them as to the details of the work.

Q. You don't consult them with reference to where you should mine or how you should mine? A. No.

Redirect Examination.

(By Mr. GRAY.)

Q. Mr. Easton, counsel asked you if you commenced extending that tunnel without the consent of the Stewart [1172—1128] Company, and you said you had? A. Yes, I did.

Q. Will you just explain what position you took in that?

A. I discussed the situation with my attorney, and I furthermore knew that it has been customary in this district to permit companies to extend tunnels through their ground—

Mr. DINES.—We object to that and ask that it be excluded from the record, what is customary.

Mr. GRAY.—It is customary, Mr. Dines; no one has ever made any objection in this country but once.

Mr. DINES.—I don't dispute the facts, but my objection is that the custom does not control.

The COURT.—Oh, no, I think that will be conceded.

(Testimony of Stanly A. Easton.)

Mr. GRAY.—Yes, sir.

The COURT.—I will overrule the objection. Of course custom won't control the law. (Plaintiff excepts.)

Mr. GRAY.—No, it simply shows his motive.

A. (Continued.) That it was customary to permit right of way through ground where no damage has been done and where no interference is made with the operations of the owner. I was also informed that if objections were brought up [1173—1129] by the owner, condemnation proceedings could be successfully instituted for this right of way, and I was furthermore informed by the Coeur d'Alene Development Company that they claimed an equitable interest in this particular tunnel.

Mr. DINES.—We move to strike that out as hearsay, both as his interesting conversations with his counsel and the conversations with the Coeur d'Alene Development Company.

Mr. GRAY.—It is simply to show his motives.

Mr. DINES.—It is hearsay.

The COURT.—It is hearsay but it explains the motive in making the entry, which have been impugned on the cross-examination. I shall deny the motion.

(Plaintiff excepts.)

Recross-examination.

(By Mr. GUNN.)

Q. It is the custom, also, when you seek a right of way through another man's ground, to ask him for permission before you enter upon it and commit a

(Testimony of Stanly A. Easton.)

trespass, is it not?

A. I have granted right of way and no permission was ever asked. [1174—1130]

Q. That is not the question. I asked you if it is not customary. A. Not always.

Q. Where one wants a right of way through another man's ground, to obtain his permission before entering upon the ground to make use of that right of way?

A. I don't think it is customary absolutely.

Witness excused. [1175—1131]

[Testimony of Max Boehmer, for Defendants.]

MAX BOEHMER, after being duly sworn as a witness for defendant, testified as follows:

Direct Examination.

(By Mr. GRAY.)

Q. Will you state your name, your residence and your occupation?

A. My name is Max Boehmer, I live in Denver, Colorado, and I am a mining engineer by profession.

Q. Where and when did you study for the profession which you have followed, and what experience have you had in the practice thereof as an engineer or as a practical miner or an operator, and where?

A. I studied at the Polytechnic Institute, in Hanover, Germany. I have practiced as a mining engineer for the last 33 or 34 years. During that time I have lived in Colorado; the first 18 years in Leadville and the last 15 years in Denver. I am quite familiar with nearly all of the mining districts in Colorado

(Testimony of Max Boehmer.)

and Utah. I have examined a number of mines in all the western mining States, and a few in Canada—Ontario—and some in Mexico. I have done [1176—1132] some mining on my own account. I am and have been consulting engineer for several companies, and I am now still consulting engineer and have been for 15 years for the Portland Mining Company in Cripple Creek, Colorado, and for a short time I had charge of Stratton's Independence mine in the same district.

Q. Mr. Boehmer, are you acquainted with the mines or veins or properties situated in the Yreka mining district?

A. Yes, sir. I have spent about a month in that district examining several mines, and about two weeks in this particular property, the Stewart and the Ontario.

Q. You have then examined and are familiar with the Ontario mine and workings and the Stewart mine and its workings?

A. Yes, I am quite familiar with them.

Q. Before coming to a consideration of those ore bodies and beneath the ground, will you briefly give the Court an idea of the approach to the mine, and the topography and the relation of the claims thereto, and you can use the model or maps if you desire in your own way?

A. These properties lie about a mile to the south of the south fork of the Coeur d'Alene River, and about half a mile or a little less to the west of Deadwood gulch. As [1177—1133] you approach the mine

(Testimony of Max Boehmer.)

from the river you go in a southerly direction, uphill all the way, and about a thousand feet above the river you find the Stewart Fraction and the Stewart lode claims, and south of those two you find the Ontario lode claim. The mine is opened by two tunnels, one about 320 feet above the other one, and the upper one is called the old lower Stewart tunnel. It starts on the north slope of the mountain, and runs in a southerly direction into the hill for more than a thousand feet. The lower tunnel is called the Fir tunnel, which starts on the Deadwood side of the mountain and runs in a southwesterly direction to the same ground, the Fir tunnel being 320 feet lower in elevation than the old lower Stewart tunnel.

Going into the old lower Stewart tunnel for quite a distance, of say 500 feet, we come to a crosscut which leads easterly, and which has been called here the Deering crosscut. Going in to the end of that lower Stewart tunnel for about a thousand feet, with a little crosscutting, there is a vein intersected by that main tunnel, and the same vein is intersected by the Deering crosscut, the vein in both places being the same vein, and has been connected by drifts and stopes all the way through, north of the Deering [1178—1134] crosscut and south of the main tunnel for a distance of 900 feet or so. The next level below the lower Stewart tunnel is called the 100 foot level, being about 100 feet below or so. There is very little to be seen in that 100 foot level because it is nearly all caved; you can see 50 feet of the vein at the end of a crosscut from that level, and get its course approxi-

(Testimony of Max Boehmer.)

mately. The next level is called the 200 foot level, further down; on that level the vein is continuously developed for about 850 feet. On the 300 foot level, still below, the vein is again well developed and accessible in all places, nearly, for a distance of 800 feet. On the Fir tunnel the same vein is developed for a distance of about 500 feet.

Now, all of the south ends, the ends of these drifts on the vein on the south, still show at the breast the vein which I have been talking about; that is, we know that to the south this vein must continue for some unknown distance. But going to the north on all of these drifts the vein meets a crevice, which absolutely cuts it off. The vein terminated against that crevice, which has been called the Osborne fault.

The direction of these drifts that I have been speaking [1179—1135] of on all the levels for this long distance plainly demonstrate the direction of the vein on the level, the direction of the vein being its course on the level. The direction of the vein on the lower Stewart tunnel level is north 30 degrees east. On the 200 foot level it is north 42 east. On the 300 foot level it is north 32 east. On the 400 level it is north 15 degrees, only, east, as far as developed. The dip as a general thing is about 45 degrees to the southwest, then, if we take the north 30 degrees east course as the direction of the vein, the dip of the vein is at an angle of 45 degrees downward in a direction of south 60 degrees east. The lower Stewart tunnel level and the 300 foot level show a continuous vein without any interruptions, while the other levels all

(Testimony of Max Boehmer.)

have some interruptions of which I will speak later.

As I have said, the vein on the north end was absolutely cut off by a fault, called the Osborne fault, and it is a fault of great throw without doubt, and estimated by competent people in the district to be several thousand feet. There is a down throw of the hanging-wall. The direction of that fault on a level line is north 75 degrees west. The tremendous movement of one wall upon the other. [1180—1136] has disturbed the country to the south greatly, as is always found in some degree in nearly all faulting of any extent. The down throw on the south side of several thousand feet has preserved the vein. We find in the Stewart now that the down throw has preserved it, while to the north the entire vein has been eroded ages ago. The effect of the faulting and the movement along the main fault was downward and to the west, as demonstrated by the bending of the country, and the vein within it, and by the drag of the ore as it is shown in places in the ground. The main fault is accompanied by subsidiary faults, which in my opinion were contemporaneous with the main fault; that is, as the main fault threw down the mass of the country to the south, it did not do it on one fissure, but by step faulting, that is, by several fissures, the movement on these fissures differing in distance to some degree. It was also accompanied by cross-faulting, that is other faults going out from the main fault at several angles, even at a right angle to the main fault, which cuts the Stewart vein into a number of sections and fractions, which, if patched together

(Testimony of Max Boehmer.)

again the way they originally were situated, would make the vein as it was originally, but as it is found now, the vein is [1181—1137] interrupted, not only on its course, but also on its dip in a number of places, but the main level, 900 feet long or so, on the lower Stewart tunnel, is uninterrupted by any faulting on its course, and I take that to be—north 30 degrees—as the main direction of the vein, because it also tallies and agrees with the strike and dip of the ore bodies in controversy, that is, the Gray stope 320 feet open and more—350 feet, also north 30 east, and the other uninterrupted drift approximate this closely.

Q. Right there, may I ask a question, Mr. Boehmer? In giving the courses of these various levels for the purpose of showing to his Honor the direction of the course of the vein on its onward course and its dip or downward inclination, what do you take into consideration, and by that I mean, do you consider the entire opening or some local course which you may secure at some particular point?

A. I take the general course, and I would like to illustrate that by a little sketch, to make it plainer.

Q. I should be very glad if you would.

Sketch marked Defendants' Exhibit "W," for Identification. [1182—1138]

A. Nearly all veins, or all veins as found in nature, are not in a straight line, because there is no straight line in nature, but there is more or less curvature in all veins, and I would illustrate that by a straight line which is bent and waved in the

(Testimony of Max Boehmer.)

vein, and then a straight line again. Now, the direction of the dip is always at right angles at the very point where the strike and the dip are taken; that is, on the straight line on the left, marked AB on sketch, it has a dip at right angles in the direction of the arrow I put underneath. The same thing would be the case on the other angle, where the line of the vein is straight. But at the bend, if I take the local strike and dip on a direction as shown by the arrow on the sketch, and a little further on where the vein turns back, I get a strike and dip as shown by the arrow at that point. Those two arrows show a dip at almost right angles to each other, but neither of them would tell me the true strike or dip of the vein, because it is simply a local dip or strike, and on the downward course these dips would change again and merge into the normal dip of the vein at some point lower down. So I take the line AB from end to end as the strike of the vein, and in this case, I have got to take the ore bodies in the [1183—1139] Ontario into consideration as well, I of course take the full levels for the strike of the vein, and not the strike of the vein as it appears in the Stewart Lode claim alone.

Q. You say, Mr. Boehmer, that in determining the strike and dip of this vein of which the Ontario ore bodies are a part, that you consider all of the workings throughout their extent as they are disclosed to you, and that you do not confine your investigations solely to the Senator Stewart Fraction

(Testimony of Max Boehmer.)

claim. I wish you would amplify that a little by going to the map, Defendants' Exhibit "B," and will you indicate to the Court how far from the so-called Osborne fault the south side line of the Senator Stewart Fraction is, or if you desire, you can use that Exhibit 3, where Mr. Clancy identified it.

A. There is about 300 feet.

Q. How far is the Gray ore body from that so-called Osborne fault, the nearest, and the furthest part?

A. The nearest part is 700 feet and the furthest part is 860 feet.

Q. The Frank ore body, the nearest part of the Frank is how far?

A. The Frank is 850 feet to the nearest part, and the [1184—1140] furthest part is 1100 feet.

Q. You have already indicated in the answer which you have given to me the general effect of that great faulting upon the vein. You said something about some minor faults or fractures that extended out from the main fault fissure. Could you illustrate that a little better by a sketch that you can make? A. Yes.

Q. Let us put that sketch on the same sheet of paper, there down at the bottom of the sheet on Defendants' Exhibit "W"?

A. Well, that level blue line can be the surface and the inclined line dipping to the south is the main fault. Now, that is probably the footwall of the main fault, lying away back in some place, back of the workings in here. The whole country did not

(Testimony of Max Boehmer.)

move on that one plane alone, but moved on a number of subsidiary faults, which might be called, and has been called, step faulting, that is, it slid a little more on one plane than on the other. At the same time there were enumerable faultings between these main slips at all sorts of angles, and outside of the main fault zone, faults and breaks started from that and cutting [1185—1141] the vein, not on the dip but on the strike, so that the ore bodies and the vein would have an appearance on this section the way I draw the red line, with the fractures between, and fragments of the vein enclosed irregularly in the fault zone. This is especially shown in good shape on the ground in the lower Stewart tunnel level; between the two branches of the fault as exposed there there is actually a fragment of the vein on which, as far as developed, two or three feet of good galena appear, dipping to the north, entirely moved away from the regular direction and dip of the vein. That is at the particular place when the plaintiffs spoke of a curve or basin in the vein.

Q. A fold, I think they said.

A. A fold, I think that is what they called it. I think there is not a fold and a connecting fold between the two bodies, but there is a fault between the Deering fault and the approach of the Deering fault to the main fault as has disturbed that particular section of the vein much more than anywhere else.

Q. Mr. Boehmer, I want to ask your attention to the model or to the maps as you prefer, and from

(Testimony of Max Boehmer.)

them will you kindly explain to the Court what you have heretofore indicated, namely the termination of that vein upon its [1186—1142] onward course by the fault, and how that is shown in the ground or upon the model, and as to the termination of the vein as it is cut off by the fault, what in your judgment that is, or represents? [1187—1143]

A. As I have described, the vein to the south in all the levels away from the fault continues in a southerly direction as far as we know, because it is visible at all the breasts to the north, each one is cut off and rather sharply cut off at the point of contact, but as it approaches the fault the entire vein inclosed within the country rock, the country rock as well as the vein together, are bent against the fault. I think the entire country for one hundred or two hundred feet to the south of the fault bent and bent the vein with it, and I would like to illustrate that on a sketch where I have observed it in other districts, which absolutely demonstrates that the entire country will move against the fault.

Q. Mr. Boehmer, I will come to that just briefly. I wanted to ask you one or two questions before I take up another sketch? What is the character of this vein as you have found it from your investigation in the ground as to being a fissure or—

A. This vein is a fissure vein cutting through the country at an angle acute to the stratification to the rock. The rocks in this neighborhood are all sedimentary and stratified, and the vein does not take the line of [1188—1144] stratification, but cuts at

(Testimony of Max Boehmer.)

an acute angle across it; that is, the vein runs north thirty degrees east, while the dip of the sedimentary rocks is south twenty degrees to the east, as nearly as I can determine in preserved places, although near the fault the country has been so disturbed that it is difficulty to find any two dips agreeing one with the other.

Q. Now, it has been testified in evidence here and you have spoken some of the irregularity of the vein, for instance, you have spoken of it that the plaintiff's claim there is a fold and you claim it is a fault; are those irregularities caused by replacement or some other cause, and if some other, what?

A. No, sir, I think if the vein were patched up to its original shape it would show a good, true, fissure with replacement of the walls in a number of places, but the great irregularity of the Stewart mine is caused especially and mainly by the fracturing and faulting and not by the irregular replacement of the country rock.

Q. One fault has been referred to here as the Clancy fault and the plaintiffs have claimed that that represents the termination of the vein on its upward course in a [1189—1145] westerly direction or on its northwesterly course upward. Have you examined the exposures upon that fault?

A. Yes, sir, I have.

Q. Have you examined the upper Stewart tunnel?

A. I have, in the tunnel.

Q. And such openings as are accessible therefrom?

A. Not all of them. I did not go down that raise

(Testimony of Max Boehmer.)

that connects with the ore.

Q. Mr. Boehmer, I will ask you where in your judgment from your investigation and inspection of the Ontario ore bodies and the country generally thereabout is the apex of the ore bodies within the Ontario which have been developed and are in litigation in this action?

A. The apex of the Frank and Gray ore bodies, I can show best on the model, and would be indicated by laying the pointer on the dip of the Frank stope. The true dip would be this, would be the apex of it to the northwest and not to the northeast, because to the northeast we walk on a level until we strike the so-called apex resting against the fault.

Q. Whereas, if you go to the northwest in the direction you have indicated, how do you go? [1190—1146]

A. You go on the true dips upwards, and it is a mere incident that the top of the Frank stope is about on a level with the 300. The top of that stope is governed by the boundary line of the Ontario lode claim; they have stoped up to their boundaries, but the vein is there and the ore is there and there is nothing to indicate to me that that would be interrupted on its upward course.

Q. Extending on beyond up here—

A. Extending on beyond, and it might come to the surface, and if it does come to the surface it would be a thousand feet higher than where the so-called apex against the fault intersects the 300 foot level.

(Testimony of Max Boehmer.)

Q. And the same is true of the Gray ore body, Mr. Boehmer?

A. The Gray ore body is separated from the Frank by a minor fault, fault No. 11; that is cut off there on its way to the surface, but the Frank could be continued to the surface.

Q. In your judgment, however, are they separated portions of the same vein?

A. They are the same vein, I have no doubt.

Q. And the apex of that ore body, then, you would look [1191—1147] for beyond the fault in what direction? A. To the northwest altogether.

Q. Does the Osborne fault cut off the vein upon its onward course as you have heretofore described so that it presents an undercut or an overcut edge of the end of the vein? A. It is an undercut.

Q. Perhaps you could sketch that so as to more closely represent—

The COURT.—That is Exhibit “W”?

Mr. GRAY.—That is Exhibit “W.”

A. If I took the course of a vein on a level line or approximately level and show a fault dipping the same as this one does on the south end (drawing on diagram) and follow the vein at the junction of the fault with the vein and mark it in red, I would have an apex all along that red line. That is in the direction of the dip as I illustrate by the arrow. You could start on any point on that apex and go down on the dip and stay on the vein. It is, therefore, an apex in my opinion, but if you reverse it, as it is in this case, and I can paint that on the other side

(Testimony of Max Boehmer.)

of the vein and lay the vein junction along [1192—1148] that fault, I have the reverse case and an undercut of the vein and the dip of the vein would strike outside of the fault. You could not stay on the vein going down on the dip, and that is the case in this case.

Q. Mr. Boehmer, there has been presented here by the plaintiff a glass model which has been made on the bias or skew, as one witness has referred to it, where the ends of the model are also cut on the bias. Could you take that model and from it illustrate to the Court where the apex to the ore bodies of the Ontario must be found by properly applying the facts as you find them in the ground; what, if anything, it shows to you?

A. The vein and the main fault if taken in straight lines as we have to do when we get the strike and dip of it are two inclined planes which meet each other at an acute angle. Now, it is impossible by a model of that sort to represent that correctly. As soon as you take vertical sections in glass and lay those sections at right angles to the fault strike, you represent the fault approximately correctly, but that necessarily cuts the vein at a diagonal because it is an acute angle between the two. I can construct half a dozen or a dozen models [1193—1149] on similar lines in similar directions, north ten west, as that model is, or fifteen west or north forty west and north thirty west and so on for every correct new model and one model would show a dip and strike differently from every other one; it would

(Testimony of Max Boehmer.)

not show the true relation of the two, but they would agree in all in one thing, as that model shows, that the vein dips away from the fault. That model shows the vein to dip away from the fault because the course of the vertical sections are northwesterly. If I go into the northeast quadrant and draw sections similar to these, say, at north fifty or sixty east, I can construct a number of models which vary from each other the same way as the other set does, but they all agree in one thing, too, and that is, they show the vein to dip, not away from the fault, but toward the fault. This demonstrates to my mind that it is impossible to construct a model of two inclined planes which intersects each other at an angle, an acute angle, with vertical sections. You cannot do it; it cannot be done to show the true relation of those planes.

Q. Can that relation be fairly and for the purposes of illustration well presented by constructing one of [1194—1150] inclined planes?

A. The sections on an incline?

Q. Yes, sir.

A. No, sir; it would not do either. But it could be done by using horizontal sections; if you take glass sheets horizontal and several feet apart you can build up the true relation of the vein and the fault, but still better it can be done by actually building the model as our big model has been built up, and I have made a little one to show that.

Q. Will you present that, if you please?

(Testimony of Max Boehmer.)

Mr. GRAY.—I desire to offer in evidence Exhibit “W” at this time.

The COURT.—It will be admitted.

The said model was thereupon marked Defendants’ Exhibit “W,” admitted.

Mr. GRAY.—Mark this, please.

The said model was thereupon marked Defendants’ Exhibit “X,” for Identification.

A. We have a horizontal base on which I first lay at the angles which are found underground and on the maps [1195—1151] using mostly Mr. Clancy’s figures, although we all agree on those figures pretty well, I think; the center line shows the meridian due north. The vein I claim to be north 30 degrees east. I have laid it out that way on the model. The fault is laid out in a direction north seventy-five west, the dip of the vein is forty-five degrees, and the dip of the fault is 58–34 degrees, to make it fit exact by calculation which is true to the fact underground and on the model and on the maps. Now, the line of junction of the so-called apex against the fault has a direction north forty degrees west as shown on Plaintiff’s Exhibit No. 3. The large figure “7” forms an angle of about seventy degrees to the eye. So the angle between the strike of the vein and the strike of the so-called apex is an angle of seventy degrees included. To show this plainer I have constructed another model the duplicate of this one where I remove the fault to show the undercut.

Q. This will be Exhibit “Y.”

The said model was thereupon marked Defend-

(Testimony of Max Boehmer.)

ants' Exhibit "Y," for Identification.

A. This model is a duplicate of the other one, and I [1196—1152] made it later and I did not get it quite dried and it warped a little, so that any angles that may be taken should be taken on the original one, but I made this to take off the fault and expose the line the way the vein is cut off. It is undercut at seventy degrees on the horizontal projection, but less than that if you take the calculation of Mr. Searles; that is the real correct angle; that makes an angle of about seventy-five degrees, but there is plenty of room to spare from ninety degrees; and I had to bore a hole to connect the fault with the vein and the hole there illustrates well what Mr. Wiley said was a good place for a dump.

Mr. GRAY.—I offer these two models in evidence.

The COURT.—They will be admitted.

The said models were thereupon marked Defendants' Exhibit "X," admitted and Defendants' Exhibit "Y," admitted.

Mr. GRAY.—You may *inquire*.

Thereupon an adjournment was taken until 2:00 o'clock P. M. of this day, Wednesday, January 15, 1913. [1197—1153]

2 P. M. Wednesday, January 15th, 1913.

MAX BOEHMER resumed the stand for

Cross-examination.

(By Mr. DINES.)

Q. Mr. Boehmer, during your 33 years of actual work in the field as a mining engineer you have had

(Testimony of Max Boehmer.)

occasion to observe many veins, have you not?

A. I have.

Q. And the result of your experience is that you have found these veins as they strike, sometimes outcropping through the surface, sometimes beneath the surface and undisclosed on the surface, and in their dips very many irregularities? A. I have.

Q. By the term "true dip" that you have used in your testimony you mean the theoretical dip on a plane at right angles to the plane of the strike?

A. That is not only the theoretical but also the actual dip; it is the shortest line—

Q. That is what you mean by it, is it? A. Yes.
[1198—1154]

Q. Then, all the dips that you have referred to are dips taken in that way, are they?

A. Yes, I think so.

Q. You have also stated in one of your illustrations that if you take the dip of a vein at one point and the dip of a vein at another point, you frequently find a variation in that dip? A. That is true.

Q. And you find the same in the strike of veins, do you not? A. I do.

Q. Then, if your purpose is, not to determine the general course of the vein or the general dip of the vein, but the course of the vein or the dip of the vein at some particular point in inquiry— A. No, sir.

Q. —you would take the dip and the strike at that point?

A. It would be the dip and strike at that particular point, yes.

(Testimony of Max Boehmer.)

Q. And if the point in inquiry that you were called upon to make was an inquiry into the local dip or local [1199—1155] strike, if you prefer that term for it, you would go to that point in it for that dip and strike, would you not? A. I would.

Q. And if you had as the special inquiry an inquiry into the intersection of two veins, and the strike and dip at the point of intersection or along the line of intersection of the two veins, you would naturally look to that dip and strike at the place of intersection, wouldn't you? A. No, sir.

Q. You wouldn't? A. No, sir.

Q. Not even assuming that the point in inquiry is the dip and strike at the point of intersection?

A. That would not govern.

Q. It would not govern you? A. No, sir.

Q. Now, I am always assuming the proposition that the point in inquiry—and I will relieve you from that burden—that the point in inquiry is the dip of the vein and the strike of the two veins at that place, right along the line of their intersection. Now, I ask you, in investigating that subject of inquiry, as I have assumed it, you would take [1200—1156] the strike of the vein and the dip of the vein at or near the line of intersection?

A. I would take the vein as a whole for the whole distance where I could see it, not a local bulge or a local curvature.

Q. You still refuse to answer my question?

Mr. GRAY.—I don't think so.

Q. My proposition is, if the subject of inquiry be

(Testimony of Max Boehmer.)

the dip of a vein or of two veins and the strike of a vein or of two veins at or near the line of intersection, would you go somewhere else to get it, or would you get it there?

A. I could get it there for that particular local place.

Q. That is what I am asking.

A. But I would not call that the dip and strike of the actual intersection of the two planes.

Q. Now, applying our illustration to this case, in your study of the relations between the Osborne fault and the Stewart vein along the lines or planes of intersection, you have not taken the dip of the Stewart vein and the dip of the Osborne fault immediately next to that intersection, but you have gone some 700 to 1100 feet away in other properties [1201—1157] than those that are involved here, and taken your courses and your dips, haven't you?

A. Yes, I include all the known elements.

Q. And you have done that, because you have designated this particular formation of the vein and point, the particular appearance at that place as an abnormality, is that right?

A. I have not said abnormality; irregularity I would call it rather.

Q. You did not use the term "abnormality"; maybe it was your counsel.

A. I don't think I said that.

Q. I had a recollection that you used that term.

Mr. FOLSOM.—That was Professor Lawson's expression.

(Testimony of Max Boehmer.)

Q. Well, it is an irregularity at that point. Now, veins themselves are irregularities in the crust of Mother Earth, are they not? A. They are.

Q. They are so classified by geologists, as something that is to a certain extent a blemish in the form, in the stratification, in the general appearance of the earth. A. A blemish?

Q. Yes. [1202—1158]

A. I would hardly express it that way.

Q. Would you express it nearly that way?

A. Well, that is not the right word.

Q. Well, you would not say it is normal, would you? A. Yes, it is normal.

Q. You find thousands of miles of rock without veins breaking through them, don't you?

A. Yes, but in the mineral district the veins are normal as well as the country rock.

Q. And you describe fissures as breaks in the earth's crust, crevices, you call them?

A. Yes, but that is normal.

Q. But they are blemishes as far as the mass of the earth and its form are concerned, do you not think so?

A. Not blemishes, but they help to form the contour of the crust and surface of the earth.

Q. Now, necessarily, in speaking of irregularities, you have in your mind when you use that term some regular thing that you compare it to, is that right?

A. Yes.

Q. And so, usually in speaking of the course, the general course of a vein, you compare it with a plane?

[1203—1159] A. Yes.

(Testimony of Max Boehmer.)

Q. And when you speak of the dip of your vein, you compare it with a plane? A. I do.

Q. Now, there is no vein which either in its course or dip is a perfect plane, is there?

A. No, but a plane can be passed through the average strike and average dip.

Q. Now, in your dips and strikes that you have presented to the Court and in your models which you used before the Court, you have taken into consideration the strike of the Stewart vein from the face of the old lower Stewart tunnel for about 800 or 900 feet, haven't you? A. I have.

Q. Have you considered its strike on its easterly portion? A. I have.

Q. You took it all into consideration? A. Yes.

Q. Did you put it in 100 foot sections or did you simply draw one line and then make your average; in speaking of the strike of the vein in the old lower Stewart tunnel level [1204—1160] you followed the old lower tunnel?

A. I drew one line for that.

Q. Where did you draw that line?

A. From the intersection of the vein on the 300 foot level to the Siligo tunnel or the Apex tunnel.

Q. That is from the 300?

A. At the intersection of your end line, to the Siligo tunnel, the eastern extremity.

Q. You took that line, and then you took the other line extending about 800 or 900 feet, connecting most of the distance in the lines of the Senator Stewart claim, and for part of the distance even beyond the

(Testimony of Max Boehmer.)

Senator Stewart claim to the south? A. I did.

Q. And you applied that course in the construction of your models that you have used here?

A. I did.

Q. And you used that course in making up your own opinion as a geologist and mining engineer as to the matters of opinion that you have testified to?

A. I did.

Q. It is also true that you took the 200 foot level from its face, outside of the Senator Stewart, running [1205—1161] through the Senator Stewart, and for a portion of the way, in the Senator Stewart Fraction, and you used these outside courses in giving your opinion and taking your data as to that?

A. I did.

Q. Did you use the 100 foot level?

A. No, I did not use that at all.

Q. That did not go quite far enough down, did it, for the purposes of your figures?

A. It meets the purposes of my figures all right, it goes north 30 east, but it is only exposed for about 50 feet.

Q. That is the one that you couldn't get into?

A. Yes.

Q. On account of its being caved?

A. I couldn't get into it on that account.

Q. Then you took the 300 foot level and the Fir tunnel level; did you take that?

A. I determined the strike there, but I did not take it into consideration, because it is rather abnormal, differing too much from the general strike.

(Testimony of Max Boehmer.)

Q. So you think that where we have a subject of [1206—1162] inquiry at the intersection of the Osborne fault and this vein, and as to their relations to each other in the Senator Stewart Fraction, that it is perfectly fair for you to overcome the actual strike and actual dip at this line by averaging it with the strike and dip of the vein in remote portions about eight and nine hundred feet away?

Mr. GRAY.—I object. The special subject of inquiry, as I understand the pleadings in this case, is the ownership of the ore bodies in the Ontario mine, some 800 feet from the point that counsel has attempted to limit the consideration of this witness to.

(Objection overruled.)

The COURT.—I think it is very proper on cross-examination.

(Defendant excepts.)

A. I think it is the only fair way, because the line or plane of that fault is very irregular. There is a bulge in the fault which runs east and west; the country is disturbed; I cannot possibly get the right condition of the two veins in relation to each other in such irregular places; I must take the general strike of the vein for a long distance. [1207—1163]

Q. Now, did you take the strike and dip of the vein at the point where you have a view of the point of intersection?

A. I think you can find almost any strike at that point.

Q. Please answer the question.

(Testimony of Max Boehmer.)

A. I did not check it in detail at every point, except by the eye.

Q. You did not give us the benefit of those courses and dips?

A. Well, I gave the courses of the levels within your Senator Stewart Fraction claim.

Q. You did not give them to us, because you indicated them as an abnormal thing, as something that was so irregular that you did not think it ought to affect the issues in this case, or affect your opinion as a geologist, did you?

A. No, sir, I included the strike of those.

Q. The strike and dip right at the place of contact?

A. Yes, I did; it was part of the strike as given.

Q. But you did not read them to us.

A. Yes, sir, I did.

Q. I think not. Did you give us the strike and dip of the vein from actual calculations that you had made at [1208—1164] different points here near the easterly end line where the Osborne fault and the vein are in contact? A. No, but I included—

Q. That is what I asked.

A. I included the vein in your claim in the general strike of the whole vein.

Q. But you did not consider that separately at all?

A. No, I did not.

Q. And you did not consider that in presenting to the Court these beautiful block models in red and blue here that you last introduced?

A. No, sir; I took certain averages there.

Q. You took averages to make your calculation?

(Testimony of Max Boehmer.)

A. Yes.

Mr. GRAY.—I don't want to have you in error, or the witness, Mr. Dines. As I recall it, he took Mr. Clancy's courses, he said.

WITNESS.—No, they tally all right though.

Mr. DINES.—No, he said he took his own, but they tallied. I wish, Mr. Gray, that you would not interrupt me unless you have a legal objection. I do not wish to preclude counsel from making any proper objection, but it [1209—1165] is a serious interruption to a cross-examination.

Mr. GRAY.—I shall call your attention to any misstatements or objectionable questions that you may ask in the cross-examination.

Mr. DINES.—Certainly, but the witness did not state that, and I think I should be allowed to cross-examine without unnecessary interruptions.

The COURT.—Yes, permit him to cross-examine.

Q. You did not state that you took Mr. Clancy's dips.

A. I said I took my own, but they agreed with Mr. Clancy's.

Q. I so understood you. Your counsel seems not to have understood you.

Mr. GRAY.—I understood perfectly.

Mr. DINES.—Very well, then, you misrepresented it to the Court, one or the other.

Mr. GRAY.—Have it as you please.

Q. Now, Mr. Boehmer, you did not consider the strike and dip of the Stewart vein along the line of the eastern end line separately from your other dips

(Testimony of Max Boehmer.)

and strikes, because you thought it was so irregular at that point that you would have to get these others to make it regular? [1210—1166]

Mr. GRAY.—That is objected to as repetition. It is three or four times that this question has been asked and answered.

(Objection overruled. Defendant excepts.)

A. Yes, sir.

Q. Why, according to your theory, if you have in nature an irregularity that you are studying, you will undertake to fix it, to regularize it before you come to a conclusion in your study of it, is that right?

A. That is right as a rule, yes.

Q. In other words, you reform to that extent the processes of nature? A. No, sir.

Q. Well, you don't take the natural course and dip at that point right at the irregularity that you speak of?

A. I take it, but I do not use it for determining the meeting of the planes.

Q. According to your idea, a hunchback could not vote, could he?

Mr. GRAY.—That is in line with the other questions.

A. I don't know any answer to that question.

Q. If I had a man with a deformed spine, with a curve in it, and the question is to study it in order that he may [1211—1167] be given some relief from science, would you consider that the fact that there was a bend in his cervical vertebrae, from a hump on it, that it was any less of a spine?

(Testimony of Max Boehmer.)

A. No, but I would not add to his height the curvature of his spine.

Q. But in studying his spine, the point of it that was curved, you would want to know the curve, would you not? A. Yes.

Q. You would not straighten it up by taking the straight portion of the spine and adding that to the curve?

A. No, I would consider that the man was straight, with the exception of that irregularity.

Q. You would not think that it helped his spine any to add the straight part of his spine to the crooked part, would you?

A. Yes, I would to get the average of it.

Q. I am not asking you about the average; I am asking you about studying the irregularity.

A. And curing it?

Q. Yes, and studying the irregularity. You would take the curve for that? A. Yes. [1212—1168]

Q. Now, here we have an irregularity in this vein, and the irregularity is the subject of study before the Court, because we have at that point an important intersection of two bodies extending down into the earth. Will you kindly give us, if you have it in your notes, the strike and dip at the 400 level immediately contiguous to this condition that we are studying at the easterly end line of the Senator Stewart Fraction, the strike and dip of the vein and of the fault?

A. For what length?

Q. Right at it; just as near to it as you can get it, as it is right there. Take a few feet, of course, either

(Testimony of Max Boehmer.)

way, but just state what that dip is right there from your notes.

A. It depends on the distance altogether.

Q. Well, take it over a distance there of 20 feet.

Mr. GRAY.—I object, because there is no such place on that end line in the Senator Stewart claim.

Mr. DINES.—I think the witness can answer that. As his Honor said of one of our witnesses, he seems to be of more than ordinary and fair intelligence.

The COURT.—I certainly agree with you on that proposition. [1213—1169]

Mr. FOLSOM.—We have now got one witness on each side whose intelligence is adjudicated.

A. The strike in that neighborhood is north 75 west of the fault.

Q. You are speaking of the 400 now?

A. Oh, the 400; the strike would be north 75—well, north 85 west of the fault, I will say there, that is, taking into consideration the entire level, not that four feet of it.

Q. Can't you give it to us right there at that place, within 15 or 20 feet?

A. I can give you almost any figure if I should take that in the ground.

Q. No, I only want it right there. I don't want you to take the whole level, but taking it right there where it is shown in the last portion of that, right near the Osborne fault.

A. Well, it is about north 80 west, that is all I can say.

Q. What is the dip of the fault at that place?

(Testimony of Max Boehmer.)

A. About 70 degrees.

Q. What direction? [1214—1170]

A. I gave you north 80 west.

Q. Are you giving that from memory or from your notes? A. From memory.

Q. If you have any notes, I would like you to give it from then.

A. No, I did not take notes of the actual contact of the vein with the fault, because I can get almost any direction there.

Q. Did you have any within a hundred feet of there?

A. I gave it in your claim up to your side line.

Q. By using all of the levels in the claim?

A. No, not using the rest of it, only using the strike of the vein on those levels within the Senator Stewart Fraction.

Q. But you take all the levels, both in their approach to the southerly side line, as well as the levels immediately adjacent to the easterly end line?

A. Yes, I take all the levels.

Q. Now, have you the dip of the vein on the 400 foot level at any point near that easterly end line?

A. It varies from 10 to 40 degrees; there are all sorts [1215—1171] of angles.

Q. You said 70, and I thought you were in error.

A. No, that is the fault. The fault is 70.

Q. I misunderstood you, then. The fault you gave as 70 degrees dip? A. Yes.

Q. Now, the strike of the vein is at that point, at the easterly end line of the 400 level about what?

(Testimony of Max Boehmer.)

A. North 15 east.

Q. Did you take that yourself?

A. I took it from the map.

Q. Will you point out the portion of the level where you took that strike of the fault in the 400 level at north 15 east?

Mr. GRAY.—I object, Mr. Dines, he did not say the fault.

A. The strike of the vein.

Q. That is my mistake. The strike of the vein is north 15 east?

A. The way I hold the pointer is the strike of that vein on the 400 foot level.

Q. Where did you get that, up above the level?
[1216—1172] A. No, right on the level.

Q. Did you follow the level for any distance in making that calculation?

A. Yes, for four or five hundred feet.

Q. The strike of the vein that you have given, north 15 east, how did you take that?

A. From the maps, which are much more correct than—

Q. You didn't take it in the level?

A. No, I did not care to take it in the level, except for a few feet.

Q. What kind of instrument is there that you took these strikes and dips with?

A. There are different kinds of instruments which take it at local places for a few feet; we make a transit survey accurately to determine the real direction.

Q. Is there any special instrument that is specially

(Testimony of Max Boehmer.)

designed for taking dips?

A. Yes, there are all sorts of clinometers.

Q. Did you use a clinometer in any place?

A. Oh, yes, many times.

Q. But this observation is not based on the use of a clinometer in the grounds? [1217—1173]

A. No, it is based on the map.

Q. Now, give the dip of the vein at the same place, on the 400 level up near the easterly end line.

A. It varies from 10 to 40 degrees, wherever you wanted to take it; it is very irregular.

Q. You did not get any dip there right at the line of 65 degrees southerly, did you? A. No, I did not.

Q. Or 45 degrees?

A. 45 degrees I should call the general dip of the vein.

Q. Do you know what was the included angle on the strike immediately adjacent to the easterly end line of the 400 where the vein and the fault come together, the included angle?

A. Between the vein and the fault?

Q. Yes. A. About 30 or 40 degrees.

Q. Did you make that calculation from your own observations?

A. That could be determined in the stopes, right in the ground. [1218—1174]

Q. You say it could not be determined in the ground?

A. I say it could be, and I did do that.

Q. Did you do it that way? A. I did.

Q. Isn't it a fact that the included angle at that

(Testimony of Max Boehmer.)

point on the 400 foot level is 12 degrees between the Osborne fault and the vein?

A. I think you have got it too small.

Q. You don't think you have got it too large?

A. No; I think it is 30 or 40.

Q. Isn't the 30 or 40 degree angle that you are referring to an angle which you have made up on your average strikes and dips taken over the whole territory to which I have called your attention?

A. No, I took that right there at the point of contact.

Q. Now, on the 300 foot level, Mr. Boehmer, please give me the strike of the vein.

A. Right adjoining the fault?

Q. Yes.

A. It would be about north 60 east, I think.

Q. Do you answer that from your own observations made in the ground, or from your own notes taken?
[1219—1175]

A. Yes, and checked on the maps, where I can do it much better.

Q. What is the dip of the vein at that point on the 300 foot level?

A. About 30 degrees in one direction, and 45 degrees in a direction about 45 degrees angle from it.

Q. Is that strike and dip that you have just given me at the same place?

A. It is in the big stope on the 300, yes, sir.

Q. And you took both of them from that, at that place? A. Yes.

Q. It would be 30 degrees in which direction?

(Testimony of Max Boehmer.)

A. Southeast.

Q. What was the strike of your fault in that 300 foot level in the immediate vicinity?

A. North 75 west.

Q. What was the dip of the fault at the same place that you took the strike? A. About 60 degrees.

Q. What direction? A. Southwest.

Q. What is your included angle between the fault and [1220—1176] the vein?

A. It would be 40 degrees or 45.

Q. Was that the angle of 40 to 45 degrees calculated by you upon these actual strikes and dips that you have given me at these points, or did you take any other data into consideration?

A. I took it right in the ground and, in addition, tested it on the map.

Q. Now, what is the strike of the vein on the 200 foot level right near the easterly end line?

A. North 50 east, about.

Q. What is the dip of the vein at the same point?

A. About 45, I think.

Q. Southerly? A. Southeasterly.

Q. What is the strike of the fault?

A. North 75 west.

Q. Is that taken where the fault appears in the 200 level?

A. Yes, that is taking the entire fault. The 200 opens it in several places. Right at the junction it is probably due east and west. [1221—1177]

Q. And what did you give as the strike there?

A. North 75 west; that is the real strike.

(Testimony of Max Boehmer.)

Q. And what is your dip of the fault on the 200?

A. About 55.

Q. Was that observation made by yourself?

A. Well, that is a guess down there.

Q. What is your included angle taken from this same data, without the use of any other?

A. It would be 45 degrees.

Q. Did you use that angle in the construction of your model? A. No, sir.

Q. On the tunnel level, the old lower Stewart tunnel level, what is the strike of the vein in the face of that level nearest to the easterly end line of the Senator Stewart Fraction? A. About north 45 east.

Q. What is the dip of the vein at the same point?

A. It is very much disturbed and caved there; I can't hardly tell you up there.

Q. From those observations, the observations you gave as to strikes, are they from your own notes taken there? A. Oh, yes. [1222—1178]

Q. How far from the east end line did you get that in the tunnel level, that strike of the vein of forty-five east?

A. How far from the east end line?

Q. Yes, sir, of the Senator Stewart Fraction?

A. It is about six hundred feet, I think, from the east end line.

Q. From the easterly end line of the Senator Stewart Fraction. You must not misunderstand me. I am asking you the strike of the vein in the tunnel level at the nearest point that you took it.

A. The old Stewart tunnel level?

(Testimony of Max Boehmer.)

Q. Yes, sir; the nearest point you took it where it comes to the Osborne fault?

A. You say to the east end line?

Q. Well, maybe I misled you there. I will ask you for that as near to the Osborne fault as you can find it.

A. I do not know how far the Osborne fault is from there; it is probably forty or fifty feet from the workings.

Q. Is there a drift that comes up to the Osborne [1223—1179] fault in any place?

A. It is all caved in and inaccessible.

Q. You never got into that? A. No, sir.

Q. What is the strike of the fault at the tunnel level, the nearest point that you could determine it to the easterly end line?

A. Well, I will call it north sixty-five west, although I have not any data for that; the fault turned slightly and flattened.

Q. What is the dip of the fault at the same place?

A. I would say it was fifty degrees, about.

Q. Did you take the strike of the Stewart vein in the Apex drift?

A. It is about north sixty east; sixty-five east, I would say.

Q. Did you make that observation yourself?

A. Yes.

Q. What dip did it have at the same place that you took that observation?

A. Including the raise I would say it is forty-five degrees. [1224—1180]

(Testimony of Max Boehmer.)

Q. Is it not a fact that the vein is very steep at that place?

A. Yes, I believe it is steeper than that; I would make it fifty-five.

Q. Haven't you any note on it, as to its calculation?

A. No.

Q. Do you not think that that vein in the Apex drift has a dip of sixty degrees?

A. That may be right. (After measuring.) I think it is less than sixty on the model.

Q. How much do you think it is from that model?

A. Fifty-five.

Q. Fifty-five degrees. What is the strike of your fault at the point where it is disclosed in the Apex drift?

A. The main fault is not satisfactorily visible there. There are a number of other faults interfering and I cannot fully tell the strike of the fault there.

Q. Could you find the dip of the fault there?

A. No.

Q. For the same reason you could not get an accurate dip? [1225—1181] A. Yes, sir.

Q. Now, your models, Mr. Boehmer, you have made from the data which you frankly stated show the general strike that is, the average general strike and average general dip— A. Yes.

Q. (Continuing.) —of your vein and fault. Taking Defendants' Exhibit "X," which is the first one you presented to the Court, you gave to the fault a dip of fifty-eight degrees and thirty-four minutes?

(Testimony of Max Boehmer.)

A. Yes, sir.

Q. And to the vein you gave a dip of forty-five degrees? A. Yes, sir.

Q. Now, you do not wish to be understood by the Court as saying the actual dip of the fault along this line of intersection at that local place is fifty-eight degrees and thirty-four minutes, do you?

A. No, sir, I would not.

Q. And you do not mean to say that the dip of the vein colored in your model in red at that particular point along that intersection is forty-five degrees, do [1226—1182] you? A. I would not.

Q. It is true, is it not, that where two solid bodies intersect such as the vein and the fault, you can vary the angle of their intersection at any time and any way by varying the angle at which they meet, can you not? A. And the dip of both—

Q. By the angle and the dip of both at which they meet? A. Yes, sir.

Q. You can vary it in any way? A. Yes, sir.

Q. You can change that particular figure in which the intersection is made to a top edge or a bottom edge as you vary and shift the dips of the bodies and their strike as arranged in their relation to each other at that point, can't you?

A. Yes, sir; it depends entirely on the angles and the dips.

Q. You have not claimed Exhibit "X" has a scale to represent the exact position of the fault and the vein along this line of intersection, have you?

A. No; the fault and the vein proper, not the actual

(Testimony of Max Boehmer.)

[1227—1183] intersection.

Q. You have used this, then, for the purpose of illustration than for the purpose of any exact representation of the intersection?

A. No, I have put the exact figures in there, and if those figures are correct, then the sections drawn from them are correct.

Q. If the figures you have used are correct?

A. Yes, sir.

Q. And you have already stated that that line may be shifted and varied from bottom to top edge according as the dip of the planes along the line of intersection and their angle of strike varies?

A. Certainly, if their angles differ you have a different result.

Q. And yet in giving this representation to the Court which you say is accurate, you admit that you have added to it, taken averages from the dip and strike of your vein at other portions of the property than right where they intersect?

A. I did, certainly.

Q. That is correct, is it? [1228—1184]

A. Yes, sir.

Q. I did not misquote you in any way? A. No.

Q. Mr. Boehmer, if I ask you to give me the angle of intersection of a bow window with a house where it comes up against it, if it was put on a slant, you would not take the general course of the wall in giving me that angle of intersection, would you?

A. Yes, sir, I would use that for one—

Q. One dimension?

(Testimony of Max Boehmer.)

A. One dimension of the angle, yes.

Q. But if it was varying, if the wall was varying, you would not average it altogether to give me the exact line, the exact angle which that line where your bow window comes up against your house takes, would you?

A. If the wall bulged I would take the average of the straight wall.

Q. Well, if you were to give me the angle between two planes represented here by the covers of this book that I hold in my hand, and there was a curve, we will say, a break in the book, one part extending this way and the other that way, and I wanted you to give me the exact [1229—1185] angle of intersection with which those parts meet, you would take it when it was plainly before it, would you not? A. Yes, sir.

Q. Without taking averages?

A. If you could determine where they actually come together, but where they come together here it is so irregular that no definite strike or dip of any kind can be determined.

Q. Where, if it is so irregular where they come together,—please tell me then how it is that you can present by straight bodies, by straight lines as you have presented on Exhibit “X” the line of intersection and tell his Honor that it is a top edge or a bottom edge or a side edge, if you do not know how the planes meet at that particular point of intersection?

A. I do not know the planes at the different little points, but I know the direction of that plane from an average.

(Testimony of Max Boehmer.)

Q. Is it not a fact that that model that has already been identified here, in showing that line of intersection, when you look down along this plane where the vein comes [1230—1186] up, and put a pointer between the two, I will ask you if you get the same angle that is put on your figure? A. I do exactly.

Q. You think it is the same?

A. I do, especially on your figure No. 3; the branch of figure No. 7?

Q. That is, you would make a No. 7?

A. Yes, sir.

Q. But the point you consider is not a portion of this other side, if it is the intersection itself?

A. Yes, sir, it is the same line of intersection that is on Exhibit No. 3.

Q. I have placed upon this model Exhibit "X" a celluloid red sheet which is curved at this point, and you find that there is an actual curve both in the vein and in the stopes that are made on that vein, that would indicate that position, do you not?

A. Yes, sir, but that does not represent the actual facts underground. The vein butts against the fault and bends slightly two hundred feet away, and you can follow it in a straight line for a thousand feet further southwest. That makes a gradual curve which does not exist. [1231—1187]

Q. We will assume for the purpose of the question that I am now about to ask you—can you see that from there? A. Yes.

Q. (Continuing.) —that the Stewart vein at one time had an extension along the line of the pointer

(Testimony of Max Boehmer.)

which is in the direction of the red upon Exhibit "X," and that a fault cuts it off along the lines that are shown by the celluloid figure so that the other portions of it were entirely dissipated, but the vein itself as it was in the ground cut by the fault, the line of cutting is as shown on that celluloid, would you say that the line of celluloid as I show it there on blue is a bottom edge?

A. Well, you could get that in the other direction, then you have a bottom edge.

Q. Yes; I am asking you the way I am representing it to you, would it be a bottom edge or top edge?

A. That would be a top edge, I think, in the direction to the southeast.

Q. Yes, sir; now, it would not make any difference, that would be the top edge, whether these other portions of the vein had been worn away and dissipated by natural forces, erosion, attrition, or whether a fault had come up [1232—1188] and cut it in that particular way, would it?

A. No, not in my opinion.

Q. The question of how it was done would not affect your judgment as to whether it is a top or bottom edge? A. No, sir, I take what I find.

Q. Now, I will ask you if it is not true that the top of the Stewart vein is shown in your Apex drift.

A. Yes, sir, I think so.

Q. For how long a distance is that vein exposed in that drift, that top of the vein?

A. For less than half of it, but there is a crosscut which also shows it.

(Testimony of Max Boehmer.)

Q. How wide is the vein to your best judgment in the vicinity of the Apex drift?

A. I should think it would be about ten feet, something like that; ten feet, I should judge.

Q. What portion do you refer to, the western portion of the drift or the—I asked you thickness?

A. Yes, sir.

Q. About ten feet. You did not find the vein then entirely in the crosscut?

A. No, I think not. [1233—1189]

Q. In the face of the crosscut?

A. The drift itself follows the fault plane.

Q. But you think it is ten feet in width?

A. I think so, from what I saw.

Q. No question about it being the vein in your mind, is there? A. I think it is the vein.

Q. And there is no question in your mind about it being the top of the vein?

A. No. It is the top of the vein.

Q. The apex of the vein? A. It is.

Q. Yes, the apex of the vein. Do you remember the point where the Clancy fault shows in the western portion of the Apex drift? A. Yes, sir.

Q. You find the vein there, do you not?

A. Yes, sir, in the floor.

Q. Yes, sir, in the floor, and coming along through the west—and in the easterly direction or northwesterly you find galena showing in streaks along the floor of the drift? A. Yes. [1234—1190]

Q. And you have a vein in the direction that my pointer is taking in a northwesterly course all along

(Testimony of Max Boehmer.)

the eastern portion of the drift to where there is gouge showing along the northerly face of that working?

A. I think the main vein is in the hanging-wall there; the crosscut reaches it.

Q. The crosscut reaches it here, and the vein takes more the direction given by my pointer?

A. It would go through that crosscut instead of along the drift.

Q. Is that all top of the vein there or apex until you come—

A. It is the upper edge of the vein.

Q. Yes, sir. Well, you understand that is an apex; that is what you mean by apex, isn't it?

A. Yes, sir.

Q. Yes, sir, upper edge. Now then, you find the vein also shown below the Apex drift in the workings and extensive stopes of the Stewart mine, do you not?

A. Yes, interrupted occasionally by faulting.

Q. Here is the apex of the vein up there; where is the apex of the vein in here? I speak of a place [1235—1191] exactly east of your Apex drift.

A. There is no apex there. It is eroded.

Q. It is eroded. Where is the highest point of the vein there then where it comes nearest to the surface?

A. All along the line where you claim the apex.

Q. All along that line? A. Yes.

Q. Down to what point?

A. Down to the Fir tunnel.

Q. Down to the Fir tunnel. That would be the apex? A. No.

Q. That would be the top of the vein?

(Testimony of Max Boehmer.)

A. No, sir; that would be the edge of the vein.

Q. That would be the edge of the vein?

A. Yes, sir.

Q. Is it the terminal edge of the vein? A. Yes.

Q. Is it the terminal edge nearest the surface at that point? A. Yes.

Q. Then it is a terminal edge of the vein and the terminal edge of the vein nearest the surface clear to the [1236—1192] point that we find it crosses the easterly end line of that claim?

A. It is a terminal edge of the vein.

Q. Now, there you and I cease to agree. You admit with me that it is a terminal edge and a terminal edge nearest the surface but you deny that the portion of it is an apex between the points where the Osborne fault is encountered at the top of raise 214 east?

A. Yes.

Q. And the easterly end line; that is right, is it?

A. It is not the terminal upper edge, but the terminal lower edge of the vein.

Q. The—you call that the terminal lower edge of the vein? A. Yes, sir.

Q. That is what I wanted to ask you. Now, where is the top of the vein between the point "C" and the apex that you say is the apex of the vein up in the Apex drift, where is the apex of that vein there between those two points, the point "C" at the top of raise 218 east and your Apex drift?

A. It would be right at the eastern edge there of the [1237—1193] Apex tunnel.

Q. Yes, sir, but coming on down, coming on to the

(Testimony of Max Boehmer.)

point "C" between here and there, where is it?

A. There is no apex there.

Q. No apex at all? A. No.

Q. Then you have traced a natural apex on the ground in your Apex drift and you find a good place to dump? A. Yes, sir.

Q. Out there? A. Yes, sir.

Q. No apex at all to it?

A. No. That is, you can get the apex in the direction of the dip under the Clancy fault.

Q. Let us see. All underneath that line that I have drawn with a pointer between the "C" at the top of raise 218 east and the point where the vein is shown and admitted to be the apex in the Apex drift there are stopes down below where the vein has actually been commercially used and stoped up toward that point? A. Yes, sir.

Q. Where is the top of these stopes nearest the [1238—1194] surface?

A. On the line you have indicated. But the apex, if you hold that there again, I can show you.

Q. Certainly.

A. That would be the apex of the vein under the Clancy fault in the drift itself.

Q. Will you put that on there again so I can call the points? In tracing that you have placed your pointer—

A. It would be at the intersection of the crosscut and the drift in the Apex tunnel.

Q. And the lines would be through what other point—down to the east?

(Testimony of Max Boehmer.)

A. Yes, the line would be on the northeast end of the Stewart tunnel level.

Q. That is an apex along that line that you have shown, that is a top portion? A. No, not that.

Q. Well, what is it?

A. That is the end edge of the vein.

Q. Is it the terminal edge nearest the surface of the vein between the points you have given? A. No.

Q. It is not the terminal edge nearest the surface? [1239—1195] A. Not nearest the surface, no.

Q. Where is the terminal edge nearest the surface?

A. Going up on the dip and going to the surface (indicating).

Q. Where would that line be placed; mark it?

A. Some place in the Apex drift.

Q. Extend it on easterly, do not be afraid of it.

Mr. GRAY.—You cannot extend it easterly.

Mr. DINES.—Wait a minute, if you please, Mr. Gray. The witness has a right to answer for himself.

Mr. GRAY.—You asked him six or seven times the same question; he has answered it. I object to it as a repetition.

The COURT.—Objection overruled.

Mr. DINES.—I ask you to locate between the lowest point that you identified as the apex of the Stewart vein in the Apex drift and the next point where you find a terminal edge, the terminal edge of the Stewart vein nearest the surface without asking you to call it anything, give me the terminal edge.

A. It is lying the way I hold my pointer. Right where the crosscut intersects the apex—the apex of

(Testimony of Max Boehmer.)

that [1240—1196] point would be in that tunnel.

Q. Is that where I marked it? A. Yes, sir.

Q. I mark this, if you will pardon me for not using your titles, with your name. That is the line that you designate as the terminal edge of the Stewart vein that comes nearest the surface at that point?

A. No.

Mr. GRAY.—I again object. Repeatedly he stated that Mr. Dines' assumption is absolutely an incorrect assumption of what he has testified.

Mr. DINES.—Your Honor has heard me.

The COURT.—I shall overrule the objection, but the witness and counsel do not understand each other, and I will let you make your explanation.

Mr. DINES.—I am perfectly willing for him to explain. Now, Mr. Boehmer—

Mr. GRAY.—Let him do it; permit him then.

The COURT.—Yes, let him now.

A. I have not stated what you say.

Mr. DINES.—Q. All right; you say then what you want to say. [1241—1197]

A. You have asked me where I would find the apex of this vein when I started at the extremity of the upper old Stewart tunnel.

Q. Yes.

A. I draw a line from there on the dip of the vein which you have indicated by pencil and which hits the intersection of the crosscut and the drift.

Mr. GRAY.—In the Apex tunnel?

A. In the Apex drift, yes, and that is much higher than any point on the line that you have drawn of

(Testimony of Max Boehmer.)

your terminal edge of the vein.

Q. You do not understand my question, Mr. Boehmer. I will ask you again. You have placed an apex that you agree is an apex to the lowest point in the Apex drift that you identify the top or apex of the Stewart vein? A. Yes.

Q. Please mark that point so we will have no doubt or dispute where it is.

A. We will take the point "W-1" there.

Q. "W-1." Now, from "W-1" on easterly—

A. Southerly.

Q. Or southerly. Southeasterly if you prefer it; [1242—1198] where is the terminal edge of the vein nearest the surface, not the top, cut out the word top. From that point and the point "C" at the top of raise 218 east?

A. I repeat it is at the intersection of the crosscut and the drift of the Apex tunnel.

Q. I am not asking you for the point; I am asking you, along that line where is the top of the ore bodies that are stoped in here beneath, where is the terminal edge nearest the surface of those?

A. In the Apex tunnel, I say.

Q. But over here now east of the Apex tunnel, where is it?

A. East of the Apex tunnel there is nothing; the vein is eroded, it is cut off by the fault there.

Q. Well, take the part that is eroded and tell me where is the highest part of the vein that lies up against the fault until you find a vein that is not eroded, what would be the line of that?

(Testimony of Max Boehmer.)

A. It is the same, I repeat it again, at that intersection.

Q. Do you mean to say that all along this line marked "Boehmer" you think would be the highest part of the ore [1243—1199] bodies that lie up against the fault?

Mr. GRAY.—He did not say anything of the kind.

A. No. I say that the apex of the lowest point on the line you have given on the eastern extremity of the tunnel level hits to the highest point or apex of the vein in the direction of the dip—

Q. I am not asking you about the apex of the vein; I am asking you the line of the termination or edge of the ore bodies between those points.

A. That is a different question.

Q. That is what I have been trying to direct your attention to.

A. That is the line (indicating).

Q. You have drawn a line to the north of the line that I marked "Boehmer," and so that there will be no misrepresentation of you in this matter we will erase the word "Boehmer" and put it at this line.

Mr. GRAY.—Now, you have changed the "Boehmer" on to another line, Mr. Dines?

Mr. DINES.—Yes, sir, to the line he has last identified and marked himself. Have I marked it correctly, your Honor? [1244—1200]

The COURT.—Yes, you have marked it correctly, but I think that other line indicated his answer as to the direction to reach the apex on the drift.

Mr. DINES.—I am not asking for a dip line; I am

(Testimony of Max Boehmer.)

asking for the uppermost portion of the ore bodies nearest the surface.

Mr. GRAY.—Hereafter all reference to the line marked “Boehmer” is along the line marked “Boehmer” which is the more northerly of the two lines.

Mr. DINES.—That is correct, Mr. Gray.

Mr. GRAY.—So that the record may not be confused.

Mr. DINES.—Q. Now, you think the ore bodies as you have seen them developed down in the ground, if you take the edge of them nearest the surface at this point in the direction of the line that is marked by you that they would likely extend up as far as that line? A. Yes, sir.

Q. And there what happens to them?

A. They hit the Clancy fault. They hit the real apex.

Q. They hit the Clancy fault. You mean over here?

A. Yes, sir, anywheres there. [1245—1201]

Q. You say that the Clancy fault is in here?

A. No.

Q. Well, now, I say, what is it that keeps the ore bodies from coming on up as high, a point here, as the vein is shown in your Apex drift?

A. It is equally as high at the end of your edge.

Q. But you have something that terminates these ore bodies; you have stopes below and they are coming up? A. Yes.

Q. And you have something at this line that terminates them; what terminates them?

(Testimony of Max Boehmer.)

A. The fault. That is the Osborne fault.

Q. That is the Osborne fault, is it? A. Yes, sir.

Q. Then the line that you have drawn in black on Plaintiff's Exhibit 1 represents as nearly as you can calculate it, does it, the line of intersection between the Stewart vein and the Osborne fault?

A. Yes, sir.

Q. Between those points? A. Yes, sir.

Q. How is the line represented from that point on to [1246—1202] the easterly end line, what workings is it shown in?

A. It is shown in all the lower levels on an approximate average line of a raise in that direction.

Q. You spoke of a portion of the vein lying along the line of my pointer and passed through W-prime and the easterly end line of the Senator Stewart Fraction as being dissipated; am I correct?

A. I said the vein was destroyed to the north of the fault.

Q. Well, that is a line to the north of the fault, isn't it? A. No, sir.

Q. Where would be to the north of the fault that you mean it is dissipated?

A. That is the junction of the two claims; the other to the north of that, everything is eroded.

Q. Suppose the vein had originally taken a position as shown by the pointer and parallel to the northerly side line of the claim, extending the vein as disclosed at W-prime in the Apex drift in an easterly direction, the line indicated by my pointer would be the apex of your vein throughout this portion of the claim just

(Testimony of Max Boehmer.)

as it is [1247—1203] through the Apex drift, would it not, in that supposed case?

Mr. GRAY.—Read that question. (Question read.) I object, it is impossible to suppose such a case because of that fault.

The COURT.—He can suppose a case. Objection overruled.

Mr. DINES.—Q. If we suppose now—

A. That the vein turned?

Q. Yes, sir, turned, and go along the surface of the ground indicated by my pointer through the point W—prime parallel to the northerly side line of the Senator Stewart Fraction claim until it crosses the easterly end line of that claim, would in your opinion in that supposed case the line indicated by my pointer be the top or apex of the vein?

Mr. GRAY.—At the same elevation as in the Apex tunnel?

Mr. DINES.—It could not be anything else, could it, if I put it parallel with the northerly end line? I do not care whether it is the same elevation or not.

Mr. GRAY.—The vein might have been intercepted upon its course along that line and that might have been the [1248—1204] line of the fault.

Mr. DINES.—Will the stenographer read the question, and the witness can modify it if he finds it wrong.

(Question read.)

The COURT.—I hold that that is a proper question.

A. It might turn out to be in certain cases, but certainly not in this case.

(Testimony of Max Boehmer.)

The COURT.—This is a supposed case.

Mr. DINES.—This is a supposed case.

A. Yes, sir; there might be such condition, depending on your angle and your dip and your strike.

Q. Now, in addition to the supposition that I have just named, to wit, that the portion of the vein lying nearest the surface at W-prime is simply extended along the line of my pointer and the dip is southerly or southeasterly, from that— A. Southeasterly?

Q. Yes, sir, southerly or southeasterly; here would be southeasterly and there would be southerly.

Mr. GRAY.—In other words, at right angles to the dip of the present vein?

A. At that angle it might turn out to be an apex. [1249—1205] It has got to be determined by figures.

Mr. DINES.—Q. Now, assume that this portion of the vein is worn away by the forces of nature until it comes down to the point taken by the pointer which is still passed through W-prime and also to raise 314 east.

A. Then the erosion has made an overhanging cliff and it would not be an apex.

Q. In considering that you would not consider whether the erosion has put it in the form of the pointer at right angles to the point “W,” or whether it goes at an angle greater than a right angle or less than right angle through the point “W”?

A. It depends entirely on the angles and the dips whether it is the under edge or the upper edge.

Q. Assume for your purpose that it is an apex as I have laid the pointer and it is worn away; I could cut

(Testimony of Max Boehmer.)

it sixty degrees and it would still be an apex, wouldn't it—so that it makes an angle of sixty degrees with your former apex? A. No, it would not.

Q. What would it be then?

A. It would be the lower edge. [1250—1206]

Q. At what angle does it cease to be a top edge and become a lower edge on the supposition I have made?

A. I think ninety degrees is the boundary.

Q. Ninety degrees is the boundary. Ninety degrees of what?

A. Ninety degrees between the strike of the vein and the strike of the juncture where the vein would be cut off.

Q. What is it if the line of your dip and the line of your intersection are parallel, assuming that you take the dip at right angles to the strike?

A. I do not think they could ever be parallel, two inclined planes.

Q. If they go down on parallel lines, they can be parallel, can't they? Suppose your line of intersection—that is in both planes, isn't it? A. Yes.

Q. Why couldn't you have a parallel line in the plane of that vein—that line is in that plane?

A. Yes, sir, parallel in direction but not in dip, I mean.

Q. Parallel in direction? [1251—1207]

A. Yes, that is right.

Q. What would it be when it is parallel?

A. That would be on the ninety degree boundary line.

Q. Now, if it goes to the left of that, that is to say,

(Testimony of Max Boehmer.)

to the east of that, what would it be as you go into the next quadrant?

A. Strictly speaking, by mathematics it would be the upper edge then.

Q. As you go to the right from your line of parallelism it goes into another quadrant and there would be the under edge, wouldn't it? A. Yes, sir.

Q. And you think that, then, explains and illustrates when by the processes of wearing away or cutting a line or cross-edge may be by the angle of intersection changed to the bottom or side edge; is that right?

A. Yes.

Q. And then that angle as you go down from your point W-prime until you have that intersection in such form that it is either parallel to the line of your strike or converges with the line of your strike, it is still a top edge—or line of your dip, it is still a top edge? [1252—1208]

A. If the included angle is less than ninety it is the under edge.

Q. It is the under edge? A. Yes, sir.

Q. And if the included angle is greater than ninety—

A. Then it would be a top edge, strictly speaking.

Q. That approaches it from another way, but they would converge from parallelism before it would change. Now, have you formulated your mathematical proposition that you have just announced to the Court, that is, that when the line of intersection is parallel to the dip of the vein, or when the included

(Testimony of Max Boehmer.)

angle is less than a right angle, it becomes a bottom edge, have you formulated that proposition into your opinion that you have expressed here that the apex of the vein is not found within the Senator Stewart Fraction lines?

A. That is one of the reasons only.

Q. You concede, Mr. Boehmer, do you not, that you go up from the immediate portion of the vein underlying this intersection and between the two claims, if you wish to call them that, the vein and the fault, that in going from that line of intersection to the immediate vein beneath, [1253—1209] you would go downward?

A. Well, that depends in what direction; you can go down or up on a level.

Q. In going anyway from that line of apex as we claim it to the Ontario ore bodies you can take a downward course between the end line planes, can't you?

A. No, sir; it goes on a level into the Ontario.

Q. Do you refer to the four hundred level?

A. Three hundred.

Q. To the three hundred level? A. Yes, sir.

Q. Isn't it a fact that there are a few feet of dip, that it is a few feet down? A. It is close.

Q. But is it not true that at the point here that is shown on Exhibit 1 as the point where the apex is disclosed at raise 314 east, it is a higher elevation than the Ontario ore bodies even on the same level?

A. I have not determined that by actual leveling, but to include the stope of the Gray ore body I think that top of the stope is a little higher a few feet.

(Testimony of Max Boehmer.)

Q. The level itself goes into the top of the stope, [1254—1210] does it not?

A. The stope goes thirty feet above the level.

Q. How much of the stope is below where the 300 level comes in; how many feet of the stope?

A. The stope below goes down to the level eighty feet or so.

Q. Then it certainly would be a higher elevation than all those ore bodies in the stope, and that portion of it that is below—

A. No, the top of the stope would be higher than that level.

Q. There are points below it, too, aren't there?

A. Yes, sir.

Q. Then you have to take the very highest portion of the stope in order to get the level condition that you refer to?

A. No; you go on the strike on a level along the vein, nearly level, that is close enough; that means it is on the strike and on the direction of the vein.

Q. Take any other point of apex, take the points in the apex all along the Apex drift and go down, is it a downward course to the Ontario ore bodies? [1255—1211]

A. It is as long as there is no raise made on the Frank ore body, as I explained.

Q. Is it down from the point where your Osborne fault cuts off the vein at the point "C" in upraise 218 east? A. It is down as far as developed.

Q. Well, you have six cross-sections that have been introduced in this case by plaintiff, haven't you?

(Testimony of Max Boehmer.)

A. I have.

Q. Have you found any mistake in those cross-sections that you could point out?

A. No, I think that they are all right.

Q. Isn't it true that every one of those cross-sections through the lines that have been given there show a downward course to the Ontario ore bodies?

A. Yes, sir, that is correct.

Q. It is also true that in those points—from these points where the Osborne fault cuts off the Stewart vein along the line of intersection that if there were a direct opening down between, a body would roll down into the Ontario ore body, would it not?

A. A ball rolling down a plane like that would [1256—1212] take the steepest dip; it would not go on a diagonal, the ball would go on a true dip of the inclined plane.

Q. Have you examined the workings where they actually worked up those points of intersection in the stoping of ore and working of the Stewart mine?

A. Yes, sir; it is dragged up in the fault a little.

Q. They did go up to it, didn't they, in working that up? A. Yes, sir.

Q. Upward to it? A. Yes, that is right.

Q. And you climbed up when you went up to see them? A. Yes.

Q. Had a good many ladders and raises to go through? A. Yes.

Q. Now, you referred also to the model that has been introduced by the plaintiff in this case and I understood you to make some criticism of this model.

(Testimony of Max Boehmer.)

I do not know just what the basis of it was. I will ask you if you did not, with the consent of the plaintiff in this case, take it apart and take those cross-sections out and check them up?

A. I did. [1257—1213]

Q. Did you find any material departure from what you thought they should show?

A. No; the workings are correct and the fault is correct.

Q. And the fault is correct?

A. The vein is a little too thick, I think, at all places.

Q. Immaterial variations so far as that is concerned? A. Yes.

Q. Mr. Boehmer, in the model you did, as I understand you, take some exception to the fact that the cross-sections on the glass in this model were taken at right angles to the Osborne fault instead of at right angles to the vein?

A. No, I did not make that objection.

Q. That was not your objection? A. No.

Q. Well, I will ask you, is it not a fact that where the object is to show the relations of the vein and the fault so far as they can be shown in the ground, that if you will take a cross-section at right angles to the dip of the fault you will thereby get a clearer conception [1258—1214] of their relations than you would if you took the vein?

Mr. GUNN.—The strike of the fault.

Mr. DINES.—The strike of the fault, I should have said.

(Testimony of Max Boehmer.)

A. No, sir, it would be misleading in both cases.

Q. Neither one would present it accurately?

A. In one case it would only present one accurately, and in another case the other one, but not both at the same time.

Q. Mr. Boehmer, admit that either one you adopt, if you take the plane of the cross-section at right angles to the strike of the vein, you would at once be subject to the criticism that it won't show the fault in its correct position?

A. Yes, sir, that is why I objected to the whole model.

Q. And if you took it at right angles to the fault, you think there is some distortion in that way?

A. Yes, sir.

Q. For—so it is impossible then in your opinion to get a cross-section anywhere that would correctly show those relations?

A. Yes, sir, with vertical sections you cannot do it.
[1259—1215]

Q. You would have to take horizontal sections?

A. Yes, sir, or build it up in full.

Q. Have you examined the plans of the levels that the plaintiff has used in this case? A. Yes, sir.

Q. Did you find any inaccuracy in them?

A. I think not.

Q. Do not those plans show those relations as we have introduced them here—is not that the horizontal plane? A. Yes, sir.

Q. Now, in the model in question is it not true that in any model of this character, a glass model, where

(Testimony of Max Boehmer.)

you have a grouping or assemblage of a number of cross-sections, take seventeen cross-sections, and you assemble them together, if you do not get, when they are so assembled, the lines of the veins through which they are cut and the objects through which they cut, whatever the plane of the section?

A. No, sir, we do not, if you use vertical sections. You could do it if you show horizontal sections.

Q. Here are vertical sections, here are vertical [1260—1216] planes passed along this line; I will ask you if in looking up in this model to the red and blue, if you do not get the line of the vein and the line of the fault at whatever angle to the vein or the fault you pass the vertical sections.

A. Yes, sir, but it is misleading because I can construct models which make the vein dip in the reverse way toward the fault.

Q. You could not do it if you had an assemblage of seventeen of your cross-sections? A. Yes, sir.

Q. And your cross-sections were accurate?

A. I could do it with a hundred of them, yes; I could show it on that model, that I am right about it.

Q. Mr. Boehmer, have you ever looked through the model of the defendants taking the light and obtained the line that is shown by your intersection of your claim and vein so far as that model shows it?

A. Yes, sir.

Q. It does not look much like a side edge, does it, or a bottom edge? A. Yes, it does. [1261—1217]

Q. You still think it does, do you?

A. I used that very direction on the model I introduced.

(Testimony of Max Boehmer.)

Q. Yes.

A. And I want to explain how I get the reverse models. Your model was taken in that direction, showing the vein dips away from the fault. The model that I say I can construct is to take a different angle and I make that vein dip toward the fault, so it necessarily must be misleading.

Q. You pass it on such an oblique angle that you would gain no benefit at all by your assemblage?

A. Take any angle you please.

Q. I do not think you understand me. My proposition is that if you take a line of cross-sections, take a line of cross-sections here, the purpose of which is to show lines—now, those cross-sections are accurate, and you take seventeen of them across these bodies; I will ask you if looking in along the line of those cross-sections and the bodies that they intersect, if you do not get the same line.

A. Yes, sir, from the way you look at it. If you [1262—1218] look at it from the northwest you are right; if you look at it from the northeast, you are all wrong.

Q. Now, I will ask you, Mr. Boehmer, if you please, to look through the glass model Exhibit 15-A and point out, if you please, or tell me, if you please, whether or not that does not show the downward course that you have referred to.

A. Yes, it does. It shows the downward course correctly in that model as far as it goes.

Q. Then you think that the vein actually in the ground from the point that we show on the first and

(Testimony of Max Boehmer.)

the second and the third does go down as shown in that model? A. On that particular section.

Q. Yes, sir.

A. But I can make it dip the other way by another model.

Q. You can, but this shows that fact that you have testified to? A. That shows downward, yes.

Q. I will ask you also if the line formed by the different intersections of the vein with the Osborne fault is not the line that you think that intersection [1263—1219] takes?

A. Yes; it is the same line which you have in your Exhibit No. 3.

Q. Now, I will ask you if I take this pointer and thrust it through this model and lay it on the top of these glass sheets here of the red that is shown in these sheets, if it would not take the same line that you have just pointed to on your model; there would be very little, if any, difference at all.

A. Yes, sir, from this point of view it would show the same as on the model. [1264—1220]

Q. So that, if I take the pointer and put it down on these lines, we will have somewhat the same suggestion of the dip of that vein as it goes into the level, as you have given with your pointer on the model in this part here?

A. Yes, it agreed with that all right.

Q. In Defendant's Exhibit "X" where the red celluloid is placed in contact with the red and blue pieces of wood, which constitute that model, does not the line that is taken down there accord with the line that is

(Testimony of Max Boehmer.)

taken for the red against the blue in Plaintiff's Exhibit 15, and also in defendant's model?

A. Very nearly, and I should think if that was figured out, you could get an undercut even then, because it is nearly parallel to the line of intersection as I have it.

Q. Yes, but I think the line here varies somewhat from it. A. Very little.

Q. If that line in red varies from the blue here, you could easily have a side edge, or, as you call it, a bottom edge, transformed to a top edge, couldn't you, with a little variation in the line?

A. Well, this would be the lower edge of the vein, as [1265—1221] I take it, should be taken into consideration, if the direction of the vein is taken as I have it parallel to the fault, then it would be a different thing entirely, then this is an apex.

Q. So the whole question comes down to the point of view that you take of it; if that intersection as it actually exists in the ground makes an angle of more than 90 degrees with the line of the natural apex that is admitted here, would you think it would be a top edge then and an apex?

A. No, sir, that is not enough.

Q. How much should it be?

A. I have another and better reason why that is not an apex, and that is that I can start on the apex on the level for a thousand feet and come into the ore bodies in dispute.

Q. Well, you have seen that in other cases, haven't you? A. Not where they were taken away, no.

(Testimony of Max Boehmer.)

Q. You have seen cases of an apex on a hill, a steeply sloping hill, where it is a flat vein and you find great variation, do you not?

A. Yes. [1266—1222]

Q. In that kind of case where you have a flat vein and a steeply inclined hill, you would find more variation in the course of your apex and in the strike of your vein?

A. Especially if it is intersected by gulches which erode it away.

Q. You have also known of cases where an apex admitted by both sides to be an apex, without any controversy, covers the same ore body? A. Yes.

Q. So the fact that there might be in this ground such conditions of curvature that one segment of the apex might cover the same body beneath the ground as another segment of the apex, would not of itself deter you from calling both segments an apex?

A. No, sir, that is quite possible.

Redirect Examination.

(By Mr. GRAY.)

Q. Relative to these things that are made to catch and deceive the eye, will you find Mr. Searles' cross-section which shows the vein going on a downward course toward the Osborne fault, and section 4 presented by the plaintiff? Now, [1267—1223] with reference to these sections, Mr. Boehmer, and to the sections that have been presented here by the plaintiffs, in referring to the mechanical accuracy of those sections, they are accurate as far as the openings on the vein are disclosed? A. Yes.

(Testimony of Max Boehmer.)

Q. These projections and extensions of the red on there in the supposed position of the vein, what have you to say with reference to that?

A. I think that is correct, only a little too thick a vein.

Q. Can you take section 4, which is Plaintiff's Exhibit 4, showing the line giving a downward inclination to the vein from the so-called Osborne fault, extending over to the Ontario, and then take the cross-section "XX," which is Defendants' Exhibit "R," showing a downward course upon the vein from the No. 11 fault to the Osborne fault, and state to the Court whether or not that assists you in any way in pointing out how you could make a model by simply screwing the sections around on different courses?

A. Those two sections prove what I asserted in making the models; reverse the case, and the relative position of the vein is there (indicating). In Mr. Searles' section the [1268—1224] vein is shown on an angle of about north 40 east, I think, in direction, and it brings a downward dip toward the fault. I can make any number of other sections, turning my line of section slightly to the west and getting a steeper dip, but all terminated downward on the fault, so I say that a model of that sort cannot determine anything.

Q. And if you take that the other way and wind that in a southwesterly direction, it would give the other apparent downward inclination?

A. The two contradict each other.

Q. Yes. Mr. Boehmer, in determining the course

(Testimony of Max Boehmer.)

of the vein as disclosed upon the models and reduced to a plane with a given course, did you take into consideration such change in the course as the vein showed between the points along which you took the course of the vein as disclosed by the workings?

A. I took the main line of the entire workings.

Q. And that curve, whatever it may be, or departure from a straight line, has been reduced from the plane of the average course as shown upon your models? A. Yes.

Q. Now then, I understood you to say that you took the [1269—1225] course of the Stewart vein on the Stewart tunnel level of approximately 900 feet?

A. That is right.

Q. Within about 30 feet of the so-called Osborne fault as painted and portrayed by the plaintiff in this case? A. Yes.

Q. Scale that red on your model, if you please.

A. You cannot apply a scale to that.

Q. Scale it on a basis of 900 feet, assuming that that is 900 feet long.

Mr. DINES.—The witness was not asked anything about scaling it. I asked him if he had scaled it, and he said no, and I never asked him another word about it.

Mr. GRAY.—I am showing again the relative attempt to deceive the eye.

Q. Please scale it.

A. Well, it is seven inches.

Q. And reducing that to a distance of 930 feet, which would be the distance, approximately, from the

(Testimony of Max Boehmer.)

vein in the south face of the Stewart tunnel to the Osborne fault on that level, and taking 900 feet out of that 950 feet, and [1270—1226] scaling it proportionately, you would get this how close to the Osborne fault, assuming that you have taken the course that this represents, 900 feet for the red; where would the point 50 feet from the blue be?

Mr. DINES.—We submit that that does not prove anything, and does not show anything that was brought out on cross-examination.

Q. The 50 feet would be one seventeenth of the distance, wouldn't it? A. Yes.

The COURT.—This is subject to cross-examination. I will permit it.

Q. Now, as they have attempted to place the vein against the so-called Osborne fault along the course of the fault on this little model, again using the same scale, how far out along the course of the fault did they extend it with this curved course?

A. About 300 feet.

Q. In other words, they bent the vein against the fault for about 300 feet on this little model?

A. Oh, there is nothing like that, no, sir.

Q. Is there any such condition as they have portrayed there by putting the celluloid in your little model appearing [1271—1227] in the ground?

A. No, sir. The vein is right here on the strike of the fault; it abuts against it.

Q. There was some question asked you with reference to following over from this Osborne fault where the vein is terminated on its onward course. On the

(Testimony of Max Boehmer.)

300 level by going into the top of these ore bodies, and you were interrogated as to whether or not portions of the Gray and the Frank were below the level of the 300 which you have followed on approximately a level, I understood you to say, from the Osborne fault to that? A. Yes.

Q. And I understood you to say that portions of that are above and portions of this ore body below?

A. That is right.

Q. And if those ore bodies continue downward on their present dip, they will still be lower? A. Yes.

Q. So that has nothing to do, then, with the question whether or not they are at a higher elevation or a lower elevation than the point where you start in on your 300? [1272—1228]

A. No, they meet the stopes in their course.

Q. And the vein rises from there on its dip?

A. Possibly to the surface.

Mr. GRAY.—There is one question I wish to ask, but I don't know but what I should have asked it in direct.

Q. Does this Drift No. 5 east and No. 5 west represent the course of the Stewart vein?

A. No, sir; I think it is unfair to take that into consideration, just as it would be unfair to take the 400 level into consideration, because that vein has been cut up so much in that neighborhood, in both neighborhoods, that it would be unfair to take that into consideration.

Q. That is in reference to the fault that you have heretofore referred to? A. Yes.

(Testimony of Max Boehmer.)

Q. Mr. Boehmer, you have determined the course of the Osborne fault and its dip, as I understand?

A. Yes.

Q. If a plane were extended indefinitely into the earth, a vertical plane, in the direction of the dip of the most westerly ore bodies, would the plane of the Osborne fault, extended downward into the earth, intersect that plane in depth? [1273—1229]

A. It would; it would cut off the vein into the shape of a triangle.

Recross-examination.

(By Mr. DINES.)

Q. In the instance that you just gave, both the Osborne fault and the vein are supposed to be indefinitely extended to the south, do you think the Osborne fault would still continue to cut off the vein?

A. Yes, it would.

Q. Now, the Osborne fault will continue indefinitely in depth to cut off the Stewart vein, will it?

A. In depth, I think it will, yes.

Q. Now, what would be that edge of the vein away toward the center of the earth?

A. That would be the under edge of the vein cut off completely.

Q. It would be the under edge of the vein, wouldn't it? A. Yes.

Q. What would be that edge over to the west?

A. That would be the same thing. [1274—1230]

Q. That would be an under edge?

A. Oh, under the Clancy fault, you mean?

(Testimony of Max Boehmer.)

Q. Yes. A. No, that would remain the apex.

Q. You think that is the apex?

A. It is the apex of the vein, for that distance, yes.

Q. And that between the place where the Clancy fault cuts it and the Ontario away down to the southwest, what kind of edge would that be?

Mr. GRAY.—I object. There is no evidence as to the relation between the Clancy fault and the Ontario fault in this case.

The COURT.—There are so many suppositions in the case, that I shall overrule the objection.

Mr. GRAY.—That is not a question in this case. Counsel is simply seeking a little information about something else. Will your Honor kindly hear me on that?

The COURT.—Yes.

Mr. GRAY.—There are other cases elsewhere pending between these parties that may involve some such considerations, and I don't think that in this case some fault which has not been developed or some portion which may exist away [1275—1231] over in here is proper in cross-examination of this witness. I alone interrogated him with reference to a vertical plane drawn downward through the southerly face of the present ore bodies, and the plane of the Osborne fault continued downward as they appear along in here.

The COURT.—I understand that.

Mr. GRAY.—Now they are trying to take him away over to this country to the south.

Mr. DINES.—I submit that wherever there is a

(Testimony of Max Boehmer.)

subject of inquiry relative to a solid body, that is supposed to have four terminal edges, it is supposed to have some terminal edge where it comes near the surface, it is supposed to have some terminal edge where it ends nearest the center of the earth, and it is supposed to have not an indefinite extension east and west but some term, and all the authorities, I think, are agreed that there is a termination of these matters. So, when he refers to one edge, it necessarily involves the other edges. He asks about a triangle down there, being an extension of this, and I am simply carrying the inquiry on further along the line of the last question asked the witness.

The COURT.—I have been very liberal in regard to cross-examination. [1276—1232] I have not limited you to matters brought out on direct examination, but in regard to this being pertinent as a subject of cross-examination, I should have sustained the objection. I overruled the objection on the ground of the liberal manner in which I have treated counsel on both sides, but if there is some other matter involved, I shall hold that this is not proper cross-examination and sustain the objection.

Mr. DINES.—I don't wish to ask any questions that your Honor thinks is an improper question and one that should not be answered, but I asked this question because I believed it was pertinent, that where one gives a definition of one edge, that that necessarily involves the definition of another edge down here.

The COURT.—That is true, but he makes the ob-

(Testimony of Max Boehmer.)

jection that it is not cross-examination, and not limited to the direct examination, and as to this question of the Ontario fault matter, that was not gone into on direct examination.

Mr. DINES.—That is correct, your Honor, I believe.

(Objection sustained. Plaintiff excepts.)

Q. With reference to the triangle that you have made by the plane that counsel directed your attention to, you say [1277—1233] it will cut off that vein indefinitely, the Stewart vein, in the form of a triangle? A. Yes.

Q. Please name the sides of that triangle.

A. Well, the line given was a line at right angles to the strike of the vein at the end of the Frank ore body. No dip was given in any direction.

Q. Well, that is one side of your triangle, isn't it?

A. Yes.

Q. Now, what is the other side of the triangle?

A. The other side is the fault, the main fault.

Q. The Osborne fault.

A. And the third side is the apex under the Clancy fault.

Q. That makes the triangle?

A. That would make the triangle.

Q. Now, how about the line between the Clancy fault and the intersection with your other line constitution a triangle here?

A. That depends entirely upon the dip of that plane given me, if it dipped to the south it would give an entirely different result that it would give if

(Testimony of Max Boehmer.)

it dipped to the north. [1278—1234]

Mr. GRAY.—It was a vertical plane I gave.

WITNESS.—And a vertical plane I answered.

Mr. DINES.—Q. And you would have one line that would be that plane, and another would be the Osborne fault? A. Yes.

Q. And the third line would be a line drawn between where the Clancy fault cuts off the vein and what other point?

A. Well, it would follow the entire apex under the Clancy fault; that would be the third side of the triangle.

Q. How far would you follow that?

A. Until it strikes the plane given me.

Q. Do you know where that would be with reference to the line of the Senator Stewart Fraction?

A. It would be, roughly, 200 feet to the south of the upper Stewart workings; that is one side of the triangle. The apex is the other side, and the third would be the intersection of the fault with that plane on the dip.

Q. The dip that you give to that fault in this model is not the dip that you have used in your models, is it? A. Yes, it is.

Q. Please give your measurements along here, and see if it is; take your dip, and take the dip on the model. [1279—1235]

A. The one on the large model will average 60 degrees, warped as it is.

Q. Put it along this right here, and see what it is, putting it on the 400 level.

(Testimony of Max Boehmer.)

A. Well, it is much steeper there; it is 70 degrees on the east end, and less than 60 degrees on the other end.

Q. It is 70 degrees here, and in your calculations you have taken what?

A. I have taken fifty-eight and twenty-four hundredths.

Q. That you got from there on the other side?

A. No, that is calculated from the other dimensions given. I have got three or four dimensions given, and I calculated from them and from the fault, from its dip that way.

Q. I will ask you if on this model, Defendant's Exhibit "L," the Osborne fault is not shown on this model to dip at the angle that you have adopted in your model?

A. Not at that point; it does at other points.

Q. What is the difference between the dip shown on this model and that on your model?

A. It is 10 degrees at the end, it tallies in the [1280—1236] middle and it is flatter on the west end.

Witness excused.

Mr. GRAY.—That is our case, your Honor.

(Defendant rests.)

Whereupon further hearing was adjourned until Thursday, January 16th, 1913, at 10 o'clock A. M.
[1281—1237]

Plaintiff's Rebuttal.

[Testimony of Alfred Frank, for Plaintiff (Recalled in Rebuttal).]

10 A. M. Thursday, January 16th, 1913.

ALFRED FRANK, recalled for plaintiff in rebuttal, testified as follows:

Direct Examination.

(By Mr. GUNN.)

Q. Mr. Frank, directing your attention to the drift on the Fir tunnel immediately below raise 415 east, I will ask you whether or not there was any drag ore disclosed in that drift?

Mr. GRAY.—We object to that on the ground that it is not rebuttal. That drift and that particular place was gone into on the direct examination in this case. Now, if we are going to try the case over again and have them go back and receive testimony that has been given, I know not where the end will be. These are the places of inquiry in this case, and they have described what they had there. They have presented a model in which Mr. Frank has attempted to show what is at that particular place, and Mr. Wiley has said that something else was there.

The COURT.—There was nothing developed on the examination in chief about drag ore at that point, but it developed in the testimony of the defendant. I think [1282—1238] it is proper rebuttal.

(Defendant excepts.)

A. The ore disclosed in that drift is not drag ore;

(Testimony of Alfred Frank.)

it is ore which is in place and continuously in place in the vein. That ore is plainly shown by a photograph which I took of that vein, that is, of the extreme easterly face of that drift, and the ore shows in that photograph to have an actual definite width of 42 inches. All of that total width of 42 inches is ore of very good grade, and it is ore which is place and does not exhibit any evidences of drag.

Q. Now, directing your attention to Defendants' Exhibit "K," I will ask you if you have taken the dip of the vein at the place represented by this picture or diagram? A. I have.

Q. I will ask you whether or not there is any place depicted upon this sketch where the vein has a dip of 19 degrees?

Mr. GRAY.—That is objected to on the ground that it is not rebuttal. Mr. Frank went into that crosscut himself on his former examination, and testified that the ore there had a certain dip at that very point, and Mr. Wiley [1283—1239] subsequently went upon the stand and presented that sketch and gave his testimony as to that particular place. Mr. Frank gave before what he found to be the pitch of the ore there.

Mr. GUNN.—I beg to differ with counsel. There has been no testimony introduced as to the dip of the vein shown upon this sketch made by Mr. Wiley.

Mr. GRAY.—I have not had a copy of the daily testimony, but I will find it if you produce it for me.

Mr. DINES.—I never heard, even in a jury trial, or a rule as to rebuttal such as is insisted upon, seem-

(Testimony of Alfred Frank.)

ingly seriously, by opposing counsel. Mr. Wiley identified the sketch. I don't care whether our witnesses testified to the dip at that place or not. He testifies to a sketch and a dip. Cannot we contradict that?

Mr. GRAY.—Mr. Frank testified to the dip at that very spot.

Mr. DINES.—Suppose he did. I agree with Mr. Gunn that he did not; I don't recall any such testimony; but even if he did? When Mr. Wiley comes in here with a sketch and says the dip at that place is 19 degrees, we have a right to rebut it. [1234—1240]

The COURT.—Yes, I shall overrule the objection. (Defendant excepts.)

A. The sketch shows the dip of the hanging-wall of the ore streak to be 19 degrees, and I think that the testimony was that the maximum dip at that point was 19 degrees. The dip which I observed at that identical point, and made a note of it in my note book, was 37 degrees. I have a photograph taken of the same identical working of which this sketch purports to be a representation, and the ore streak as shown on that photograph measures approximately in accord with the dip which I measured by means of a clinometer at that point.

Q. The photographs that you refer to are the photographs that were presented to Mr. Wiley during his examination, and which were marked Plaintiff's Exhibits Nos. 18 and 19 for Identification?

A. Yes. The photograph which was presented

(Testimony of Alfred Frank.)

during my examination and marked Plaintiff's Exhibit No. 16 is also a photograph taken at a distance not to exceed 20 feet from this same identical spot, and that shows a dip very much in excess of 19 degrees.

Q. What have you to say, then, with reference to this [1285—1241] sketch presented by Mr. Wiley showing a dip of 19 degrees for the vein at that point being a correct picture of what is disclosed in the ground at that point?

Mr. GRAY.—I again offer the objection that it is not rebuttal.

(Objection overruled. Defendant excepts.)

A. I don't believe that that is a correct picture of the conditions exhibited or exposed in the ground at that point.

Q. Now, calling your attention to Defendants' Exhibit "Y." I will ask you what you have to say with reference to that model being a correct representation of the vein as it appears in the ground and of the intersection of the vein with the Osborne fault?

A. That model is not a correct representation of either the vein or the relation of the vein to the fault as it actually exists in the ground. The intersection of the vein with the fault is exposed and developed practically continuously in the ground; that is, we have on the 400 or Fir tunnel level, on the 300, on the 200, on the 100, on the lower Stewart tunnel level, and on the Apex drift, the actual intersection of the vein with the fault [1286—1242] developed, and

(Testimony of Alfred Frank.)

from and at each opening these points determined, and at these points of exposure the angle of intersection can be and has been determined and can be actually measured on the map. This model, which purports to represent the intersection of the vein with the fault, shows a straight line, for both the vein and the fault,—and shows an absolutely straight line of intersection, and that is not the case. The vein, before it reaches and is intersected by the fault, takes a decided bend to the east, and makes, instead of the plane of intersection shown on this model, Exhibit “Y,” a very sharp acute angle in the actual intersection of the two, that is, the vein and the fault in their easterly course.

Q. What have you to say with reference to this Exhibit “X”; they are the same?

A. Exhibit “X,” I see, has on it the small piece of red celluloid which I was asked by Mr. Dines to place thereon yesterday, and I will add that the position of the red celluloid there, while not exactly to scale, as in fact the entire model is not—the red celluloid more nearly, and in fact very nearly represents the actual true conditions as they exist in the ground. [1287—1243]

Q. And what have you to say as to the dip of the Osborne fault corresponding with the dip of the fault as depicted by this model at the intersection?

Mr. GRAY.—I object to that. Mr. Frank gave the dip and strike of the Osborne fault on direct testimony.

(Objection overruled. Defendant excepts.)

(Testimony of Alfred Frank.)

A. The dip of the Osborne fault as marked on that model is 58 degrees 34 minutes (58' 34"). I will say that the taking of a dip with such a degree of accuracy and applying it to a measure, a plane or development which exists in the ground covering many hundreds of feet both up and down and laterally, is an impossibility and it in fact approaches an absurdity. That dip varies a great deal, and to ascribe to as large and as well developed an exposed geological measure as the Osborne fault a dip of 58' 34" is an impossibility. It might be possible at some point for a short distance, at some point of exposure in the ground, to measure a dip that would correspond to that, but it would by no means represent the actual true dip of the fault as it exists and has been developed.

Cross-examination.

(By Mr. GRAY.)

Q. What is drag, Mr. Frank? [1288—1244]

A. I consider drag to be in the case where a vein is faulted—I consider drag to be parts of that vein which have been carried beyond the broken or cut-off edge and end of the vein into the fault.

Q. Does it make any difference how far they are carried?

A. Not at all, but I do not consider drag as being a part of the vein which has remained a part of the vein, that is, where the vein can be followed continuously to its end, even though that vein may be bent around, if you wish to use the term "bent." I do not consider the bent portion as being drag.

(Testimony of Alfred Frank.)

Q. Even though it is displaced and moved along in the fault and by the fault?

A. Even though it is displaced and moved by the same force which caused the fault, I would not consider that drag unless it were detached from the vein and carried along into the fault and separated entirely from the vein.

Q. By "separated entirely from the vein," what do you mean?

A. Well, I don't know how I can express it more clearly; it means that the particle separated from the vein, that [1289—1245] it is removed from attachments and continuity with that vein.

Q. I hand you a specimen which I will have marked for identification Defendants' Exhibit "Z." What is that? A. It looks like a piece of ore.

Q. What kind of ore?

A. It is ore in part such as we find in this ground.

Q. Is that drag?

A. Seeing it in this manner I would not necessarily say so, no, sir.

Q. You are unable to tell by looking at it?

A. By looking at a small piece of ore like that I would not say that it is drag.

Q. You are unable to say whether it is or is not?

A. Yes, because to my mind the definition of drag would apply and could only be applied to the ore depending upon how it was found. I think that the characteristics are found in the ore that is essentially drag ore as I understand the term, may also be found at times in particles of ore actually in place in the

(Testimony of Alfred Frank.)

vein far away from any large fault, therefore any piece of ore which you might exhibit to me in this way I would not necessarily recognize it as drag, because it may come out of a part of the vein which [1290—1246] had never been disturbed by one of these major faults; that is, there are local disturbances in and within veins at times which cause particles of ore to assume and have the same characteristics as drag ore carried long distances within a fault.

Q. And that is your qualification of what may be held to be drag? A. (No answer.)

Witness excused. [1291—1247]

**[Testimony of William Clancy, for Plaintiff
(Recalled in Rebuttal).]**

WILLIAM CLANCY, recalled for plaintiff in rebuttal, testified as follows:

Direct Examination.

(By Mr. GUNN.)

Q. Mr. Clancy, directing your attention to the drift on the 400 immediately below the raise 415 east, I will ask you whether or not there is any drag ore disclosed in the face of that drift?

A. There is not.

Q. Did you hear the testimony of Mr. Wiley?

A. I did.

Q. Did you hear what he described as drag?

A. I did.

Q. What have you to say with reference to that being drag?

(Testimony of William Clancy.)

A. I do not agree with Mr. Wiley on that subject. There is the extension of the vein which can be followed from the vein which has been stoped with no break in the continuity of the ore.

Q. Have you taken the course of the Stewart vein below the surface of the Senator Stewart Fraction claim from the [1292—1248] termination along the Osborne fault to the south side line of said claim?

Mr. GRAY.—That has been gone over; Mr. Clancy gave to me on his cross-examination originally, and he went into all of this in chief. It seems to me there must be some limit, and it is not rebuttal.

The COURT.—I think that that has been developed very fully. I may be mistaken in my recollection.

Mr. GUNN.—I beg your Honor's pardon. It was developed by Mr. Searles on cross-examination. Mr. Clancy did not give those courses on his direct examination, and as a matter of fact Mr. Clancy made the statement that you could not take a strike along a crescent.

The COURT.—I remember that. However, I will overrule the objection to save time. I am not clear in my own mind.

(Defendant excepts.)

A. I have taken those courses.

Q. How did you take those courses?

A. As I explained, upon my direct examination, it is impossible to give a course or a general course representing a crescent; that is like a railroad curve; you would have to give the distance on the straight

(Testimony of William Clancy.)

line which this curve [1293—1249] takes, in order to determine its position. I have taken, measuring from the south side line of the Senator Stewart Fraction, on each level of the mine where the vein has been developed, and measured off each 100 feet or thereabouts along the footwall of the vein as shown upon our individual level maps which have been placed in evidence and added those courses and divided by the number of the courses taken on each level, and obtained a course in that way which is approximately the course of a line from the point that the footwall of the vein crosses the south side line of the Senator Stewart Fraction to a point where the footwall is terminated against the Osborne fault.

Q. I understand that you have taken the courses in 100 foot sections?

A. Yes, or as near thereto as possible.

Q. And then you averaged those courses as taken on each level? A. Yes.

Q. Will you give us the general course that you obtained by the method that you have pursued on each of the levels?

A. Well, I wanted to explain before I am stopped there— [1294—1250] that it needs something further in order to determine it.

Q. Go ahead.

A. The general course as determined in that way on the old Stewart tunnel level is north 67 degrees east; on the 100 foot level it is north 55 degrees east; on the 200 level it is north 54 degrees east; on the 300 level it is north 50 degrees east, and on the 400 level

(Testimony of William Clancy.)

it is north 56 degrees east. On the old Stewart tunnel level, measuring along the line which joins the end of the curve and represents the footwall at a distance of 330 feet from the south side line of the Senator Stewart Fraction, the curve lies in a northwesterly direction from this straight line a distance of 150 feet. On the 100 foot level under the same conditions, at a point 60 feet from the south side line of the Senator Stewart Fraction, the footwall is approximately 45 feet in a northwesterly direction from the line described. On the 200 foot level at a point 105 feet northeasterly from the south side line of the Senator Stewart Fraction the footwall lies in a northwesterly direction 60 feet from the line joining the ends of the curve. On the 300 foot level at a point 110 feet from the south side line of the Senator Stewart Fraction the footwall lies in a northwesterly direction 20 feet from the line joining the ends of the [1295—1251] crescent. On the 400 foot level, as shown by Plaintiff's Exhibit 14, the course which I have given as north 56 east represents a line drawn from the termination of the footwall against the Osborne fault in a northwesterly direction to the point where the footwall crosses the south side line of the Senator Stewart Fraction, at a point 160 feet from the south side line of the Senator Stewart Fraction, the footwall lies in a southeasterly direction a distance of five feet. [1296—1252]

Cross-examination.

(By Mr. GRAY.)

Q. I want you to take the Stewart tunnel level and

(Testimony of William Clancy.)

divide into sections of one hundred feet each from the point at the bottom of raise 4 east to its south face.

Mr. DINES.—We object, your Honor. He wants this witness to divide this into sections from this point to the face. Now, I submit he has no right to ask this witness to do that; the witness has not testified to it in rebuttal at all.

The COURT.—I shall overrule the objection.

Mr. DINES.—Note an exception. We claim they have gone into that in their part of the case and it is not cross-examination of this witness.

The COURT.—You may go ahead, Mr. Gray.

Mr. GRAY.—Q. Go ahead.

A. Before I do that, if you expect a sketch of the course I have given through the footwall as shown upon this map, shall I use this map?

Q. You may use this map.

A. The footwall is not marked upon this map.

Mr. DINES.—I submit he cannot contradict the witness [1297—1253] in that way.

The COURT.—He cannot contradict the witness in that way; he can only contradict him by showing it on the footwall which is not shown on that map.

Mr. DINES.—Then it is original evidence which this question calls for.

The COURT.—I am inclined to think he can only cross-examine on the footwall.

Mr. DINES.—I ask that it be limited to that and therefore object to the question.

The COURT.—I shall sustain the objection.

Mr. GRAY.—I show your Honor the character of

(Testimony of William Clancy.)

the evidence they are producing here.

Mr. DINES.—Your Honor, I object to the denunciation of this counsel during this case in the way he keeps reiterating and putting his construction upon our evidence and showing the character of it to your Honor.

The COURT.—It does not hurt you gentlemen a bit so far as this Court is concerned. I do *not what* effect it will have on the record.

Mr. DINES.—I ask your Honor to request counsel, because it will certainly contribute to harmony during [1298—1254] the trial, that he desist from comments on the evidence, and I do not wish to be understood as being discourteous at all.

Mr. GRAY.—Because of your greater age I have permitted you repeatedly during this case to speak to me in a way that I would not otherwise permit counsel.

The COURT.—I shall stop any further controversy between counsel. We have had sufficient already on both sides.

Mr. GRAY.—You have attempted to give to his Honor average courses of what has been painted the footwall upon the Exhibit No. 10.

A. Yes, sir, and I so specifically stated.

Q. Just lay those off on there.

Mr. GUNN.—Mr. Gray, could we not expedite this by having you continue your examination of Mr. Clancy and let him make that calculation for you and recall him?

Mr. GRAY.—No, I would like to finish with him

(Testimony of William Clancy.)

right now, Mr. Gunn.

Q. Have you given that, Mr. Clancy? Just extend it on down. I will start now at your most southerly point which is but a short distance from the face of that little [1299—1255] crosscut near the south end of the Stewart tunnel level?

A. Do you want an average of those?

Q. No. For the first hundred feet as marked on there is there any working which discloses what you have termed the footwall of this vein?

A. For the first hundred feet—

Q. Just answer that yes or no and then you may explain. A. Yes.

Q. Where is it?

A. In the working which is shown south, running in a southerly direction from the raise marked R. No. 7, there is a lateral, more in the nature of a crosscut; it is called a lateral. There is a galena, deposition of ore, and specks of galena back from the drift for a distance of twenty or thirty feet, and that gave us the information from which the footwall was placed on there.

Q. Your first hundred foot mark is south of that alleged level, isn't it? A. A distance of three feet.

Q. Yes, sir. In the course of that 100 feet there is absolutely no opening upon this alleged footwall, is [1300—1256] there?

A. Technically there is nothing upon that hundred feet which we could actually see.

Q. All right; take the next hundred feet, and this lateral which you have spoken of is the only working

(Testimony of William Clancy.)

which penetrates beneath the vein, isn't it?

A. On that particular elevation that lateral is the only working that penetrates the vein.

Q. And what you have painted in red upon this exhibit as the footwall is not shown except where you claim that lateral cuts it in that level and in that hundred foot section, isn't that true?

A. The position of the ore is nearer the footwall than that lateral.

Q. I say, within that hundred feet that is the only opening upon what you have painted and portrayed and called the footwall upon that exhibit?

A. On that particular—

Q. Just answer my question. A. Yes.

Q. I did not want to cut off your explanation, if you have one to make to the Court. [1301—1257]

A. I have explained before how these things were made; we were justified in doing that because of our working on the pay-streak, and the stopes at this particular point are within twenty feet—

Q. That is in the Stewart tunnel level?

Mr. DINES.—Wait a moment; let the witness explain. Let him finish his explanation.

A. That is in the Stewart tunnel level, and in the level, the mineralization is shown back as far as I have shown it, and in several places, and therefore we knew the mineralization did extend in the footwall for the distance I have told you about, and therefore we are justified in placing the footwall as we have done.

Q. Take the next hundred feet; it is intercepted

(Testimony of William Clancy.)

by what working, if at all—a dotted red footwall you have painted on this exhibit?

A. By a working on the old lower Stewart tunnel.

Q. How far from station 9514 along that tunnel in a westerly direction?

A. A distance of twenty feet.

Q. Do you say that at a distance of twenty feet westerly along that crosscut from the station to which I called [1302—1258] your attention the vein extends on that level—answer that question yes or no.

A. The vein as I have defined it does extend—

Q. On that level?

A. Just the way it is painted upon that map.

Q. On that level?

A. Yes, sir, on that level and every other point you take there.

Q. That point twenty feet westerly along the Stewart tunnel crosscut back into—before you come to the footwall of the vein?

A. Just in the way which I have described, we are justified in placing that footwall there.

Q. Take the next 100 foot section.

A. The same thing applies to the next 100 foot section.

Q. Just one opening on it?

A. There is one opening there.

Q. Take the next one, there is not any, is there?

A. It lacks two feet.

Q. Well, there is not any, is there, in that 100 feet?

[1303—1259]

A. No, there is not any.

(Testimony of William Clancy.)

Q. All right; take the next one. Where did you go then? A. Along the footwall of the drift.

Mr. DINES.—One moment. If you wish to explain there, you can, about why you placed it there where you say there is not any.

A. I have gone through the explanation so many times.

Mr. DINES.—Explain it; if the counsel reiterates, you will have to give your explanation; we want it.

Mr. GRAY.—Wait a moment; if the witness desires to explain, he can, but to have Mr. Dines repeat it, I have listened to his repetition here about two weeks and that is enough.

Mr. DINES.—I think I have a right to tell the witness—

The COURT.—I think I understand it sufficiently.

Mr. GRAY.—Q. Go on with the next hundred feet.

Mr. DINES.—One minute; I would like to ask if Mr. Clancy desires to explain any further.

Mr. GRAY.—Just proceed, Mr. Clancy.

Mr. DINES.—One moment.

Mr. GRAY.—The Court has passed on the objection. [1304—1260]

Mr. DINES.—I did not understand his Honor to rule on it.

The COURT.—I will permit Mr. Clancy to explain, if he wants to.

A. The footwall of this hundred feet is placed at a distance of approximately twenty feet in a north-westerly direction on the drift which was driven along the pay-streak of the vein, and we know from evi-

(Testimony of William Clancy.)

dences which I have heretofore explained that the mineralization exists in the footwall and therefore we were justified in placing the footwall as shown on this map.

Q. Just one moment. Why did you have justification for saying that the footwall has a different course in that hundred feet than the Stewart tunnel level? A. Which hundred feet?

Q. The one you have just mentioned.

A. Because the Stewart tunnel level as driven between survey points 9520 and 9581 is in the end of a crosscut and crosses the vein and does not extend right on the vein there.

Q. How do you know that the footwall has the exact course which you have given to it by your painting upon [1305—1261] this map through hundred foot sections upon which there is no working?

A. The exact location of that footwall cannot be obtained by anybody, therefore we painted it in the way we did.

Q. And therefore in giving this average you have taken what you have painted, assuming that the footwall is as you have painted it?

A. We took it for each hundred feet; that is the nearest we could get to it.

Q. Now, we have for a hundred feet ore practically exposed along that drift on the Fir tunnel level.

A. Yes.

Q. What is the course of the footwall as shown upon that level for that hundred feet?

A. For the hundred feet which is shown approxi-

(Testimony of William Clancy.)

mately between survey points 9581 as marked upon Plaintiff's Exhibit 10 and survey point 9522 the course of the footwall is north 35 degrees east.

Q. All right. Now, take the next hundred feet. Have you any working upon what you have painted the footwall [1306—1262] there?

A. We have.

Q. The Stewart tunnel level, for a distance of approximately fifty feet to the bottom of that shaft?

A. To the bottom of the raise on the map.

Q. Then there is no working from there—

A. Shall I explain?

Q. I am perfectly willing, if you will just tell me whether there is any opening upon this alleged footwall.

A. Upon the old lower Stewart tunnel there is not. Our information from which we placed the footwall upon this level, there being no working upon the old lower Stewart tunnel level to show it, was obtained from the stopes which extended in the direction as shown through the letters "AC" in the word "Fraction" of "Senator Fraction" on Plaintiff's Exhibit 2.

Q. How far were those stopes from this alleged footwall at that point?

A. The stopes were at a distance of fifteen feet above the old lower Stewart tunnel level.

Q. These are the stopes right in here that you are pointing to? [1307—1263] A. Yes, sir.

Q. Give me the course of those stopes that were within fifteen feet. Is that a fair course that you are giving of those stopes?

(Testimony of William Clancy.)

Mr. DINES.—I submit, your Honor, if Mr. Gray wants to testify, he can take the chair.

Mr. GRAY.—Your Honor can see that he was starting in at the footwall and taking the diagonal course—

The COURT.—Let Mr. Clancy answer the question without any criticisms as to the manner of cross-examination, and he can find out if he is doing it right.

Mr. GRAY.—This course that I want is right in there, Mr. Clancy?

A. I will make it just to suit you.

Q. No, make it to suit yourself.

Mr. DINES.—That is what I objected to. Mr. Gray ought to be sworn if he is going to testify.

Mr. GRAY.—If I did I would not start in on the footwall and go across diagonally.

A. North thirty degrees east.

Q. North thirty degrees east?

A. I will give you some additional evidence for placing [1308—1264] the footwall as I did. Near the survey point 9962, or as near as we could determine, the footwall was shown in a working marked Deering crosscut, and the stopes as shown upon the map have a slight bend in them, therefore we painted the footwall—

Q. The footwall was disclosed there, and it was again disclosed I understood you to say, actually upon that lateral to raise No. 7 east. Give the course between those two points where you have actually found it.

(Testimony of William Clancy.)

A. I have given you that course in the direct examination as north thirty degrees east, between points 9562 and 9530.

Q. There we reach the point where you say the vein flattens out. I understood you to say in your direct examination that in this area between the Stewart tunnel level here near the Deering crosscut and this drift 5 west and 5 east is what you call a fold in the vein? A. Yes, sir.

Q. And the other courses that you have attempted to inject into your average are courses which you have taken in what you call the fold of the vein?

A. Not at all. [1309—1265]

Q. Along what you have termed the footwall through the fold of the vein? A. No, sir.

Q. All right; show his Honor.

A. I certainly will. There is where the fold begins. I can show it better upon the stope map. The stopes are coming down from the top of the stopes underneath the Apex drift and strike the tunnel level; there is the footwall which was taken; the fold lies south of that.

Q. Yes, sir. And you have taken all this dotted red line where no one knows where the footwall is from a point approximately 2090 on down for 250 feet from there, haven't you?

A. That is the next place we had the vein.

Q. You have taken 100 foot sections in your average along that dotted red line, haven't you?

A. I have.

Q. Yes, sir; and that dotted red line runs through

(Testimony of William Clancy.)

what you have termed the fold in the vein, doesn't it?

A. I beg your pardon; I thought when you were asking me the question about the average you were asking me about the portion marked drift 4 east. If you were asking about [1310—1266] that—

Q. Yes, sir, the dotted red line?

A. I did take the course along that footwall to the next place we had the vein and the apex exposed.

Q. This same principle which you have applied to the Stewart tunnel level you have applied to these other levels in taking the same course; is not that true?

A. In getting your averages, yes, sir, I have taken the footwall just as shown upon these individual level maps which I thought was the actual location of the footwall.

Q. Yes, sir; as painted by Mr. Winchell or some one under his direction.

A. Mr. Winchell's notes, Mr. Greene's notes and all of us, from observations which we have taken and proved and gone back and looked over it and found the vein—it is from the facts in the ground which that footwall is painted.

Q. But your courses are taken from the painted line shown upon these maps? A. Necessarily.

Q. There is just one more question; I wish you would [1311—1267] give this average course down along 2090 along the dotted line where no one knows where the footwall is and where it passes through what you have termed as a fold in the vein.

Mr. DINES.—I object to the language used in the

(Testimony of William Clancy.)

question just asked, "where no one knows where it is."

Mr. GRAY.—Except Mr. Dines. The witnesses have all declined to state the place.

Mr. DINES.—Your Honor, I submit that there is no occasion for that, and I ask a ruling on that question. I ask a ruling because I believe the question is erroneous. I think it contains matter that no counsel is permitted to put in a question. If the witness answers that, it looks in the record as if the witness possibly had adopted the insulting and discourteous language that I claim is in that question.

Mr. GRAY.—I did not intend it as insulting or to be discourteous to the witness.

The COURT.—I disagree with you, Mr. Dines. It may be a false assumption in the question. I do not know whether there is—

Mr. DINES.—Will the stenographer read the question please, so we can have it exactly before his Honor? [1312—1268]

The COURT.—I remember it. "Which no one knows" is the objectionable part.

Mr. DINES.—Yes, sir, "where no one knows."

Mr. GRAY.—Mr. Clancy has said that that is true.

Mr. DINES.—Now, I say that is a comment not permissible in a question.

The COURT.—If that statement is incorrect, Mr. Clancy has an opportunity to correct it.

Mr. GRAY.—You can correct it, if you want to.

Mr. DINES.—No, I do not think Mr. Clancy can correct counsel's question. My objection goes direct

(Testimony of William Clancy.)

to the question, and I would like to have your Honor rule upon it.

The COURT.—I shall allow the question. On cross-examination I am not going to criticise every question that is asked or we would never get through some examinations which I have known, not this one, perhaps. A. South 45 degrees east.

Mr. GRAY.—Q. That is not open through there, is it?

A. Along the footwall which is marked in a dotted line the ground is not open. We have an opening here of from 20 to 50 feet. [1313—1269]

Q. That is in what you call the east No. 3 crosscut?

A. Yes, sir.

Q. And the dotted red line is put on there for the very purpose of showing that there is no opening along there?

A. The opening is not there.

Q. And no one can place where the place where that footwall as you call it is?

A. Absolutely determined by seeing it, you cannot.

Q. No, and that is the reason you have so painted it upon the map?

A. That is the reason it is dotted, because we have information to place it therefrom.

Mr. GRAY.—That is all.

Redirect Examination.

(By Mr. GUNN.)

Q. State whether or not there are any waste raises along the hanging-wall or footwall, crosscuts, that have been used in determining the width and location

(Testimony of William Clancy.)

of this vein at different points.

A. There have. There are numerous waste raises placed in the hanging-wall for the waste, is the reason [1314—1270] they are put there. We used them to determine the width of the vein.

Q. Is there any place on this Exhibit 10 where you can get a strike of north 15 east?

A. North 15 east?

Q. Strike of the vein north 15 east. I will direct my question to the 400 foot level here on Plaintiff's Exhibit 14.

A. Yes; I got a course of approximately north 15 east about 100 feet—along the vein about 100 feet south of survey point 2100 as marked upon Plaintiff's Exhibit 14.

Q. And where is that with reference to the south side line of the Senator Stewart Fraction?

A. That is approximately 200 feet south of the south side line of the Senator Stewart Fraction?

Mr. GUNN.—That is all.

Mr. GRAY.—Q. It is within the vein on its strike from the Senator Stewart Fraction side lines, isn't it? A. Yes.

Mr. GRAY.—That is all.

Witness excused. [1315—1271]

**[Testimony of Fred T. Greene, for Plaintiff
(Recalled in Rebuttal).]**

FRED T. GREENE, recalled on behalf of the plaintiff in rebuttal, testified as follows:

(Testimony of Fred T. Greene.)

Direct Examination.

(By Mr. GUNN.)

Q. Mr. Greene, I want to direct your attention to the drift immediately below raise No. 415 east and ask you whether or not in the face of that drift any drag ore is disclosed?

A. There is no drag ore disclosed in the face of that drift.

Q. Did you hear the testimony of Mr. Wiley with reference to the ore in the face of that drift being drag ore?

A. I did; and I disagree with Mr. Wiley.

Mr. GRAY.—Wait a minute. That is improper, if your Honor pleases. Mr. Green can give his opinion, but a comment on Mr. Wiley's testimony is not—

The COURT.—He says he disagrees with Mr. Wiley. I think that is entirely proper.

Mr. GUNN.—Q. I direct your attention here, Mr. Greene, to Defendants' Exhibit "Y" and Defendants' Exhibit "X" [1316—1272] and ask you whether or not those exhibits correctly represent the position of the vein in controversy in the ground and the position of the fault known as the Osborne fault and the relation of one to the other?

A. They do not, for the reason that it is impossible with straight, ideal planes to reproduce the conditions of a curved plane meeting another slightly curved plane, and the celluloid as interposed on that model by Mr. Frank comes more nearly reproducing the meeting of the curved plane with another plane.

Q. What have you to say with reference to a tak-

(Testimony of Fred T. Greene.)

ing of the general course of the vein as disclosed in the workings of the Stewart property for distances of several hundred feet and ignoring the course of the vein as it approaches the Osborne fault, showing the relation of the fault to the vein or the position of the vein in the ground beneath the Senator Stewart Fraction claim?

Mr. GRAY.—That, if your Honor pleases, is not rebuttal. That was what their main case seemed to be made up of.

The COURT.—I will overrule the objection.

A. The course of that vein directly applicable to [1317—1273] the apex is that course which is under the Senator Stewart Fraction, and the courses should be taken within the line of the Senator Stewart Fraction claim in order to give the direct relation of the plane of the ore sheet with the plane of the fault.

Mr. GRAY.—I move to strike that out. That is all a legal conclusion, the question whether or not your Honor can consider the course of that vein outside the Senator Stewart Fraction.

The COURT.—The motion will be denied.

Mr. GUNN.—That is all.

Cross-examination.

(By Mr. GRAY.)

Q. Mr. Greene, there is a round of unshot holes in this material which Mr. Wiley has designated drag and which you have chosen to term portions of the vein? A. There is half a round, Mr. Gray.

Q. By whose direction was it that they were not shot—yourself? A. I believe so.

(Testimony of Fred T. Greene.)

Mr. GRAY.—That will be all. [1318—1274]

Redirect Examination.

(By Mr. GUNN.)

Q. And why were they never shot, Mr. Greene?

A. At that time we anticipated that we would be able to have Judge Woods see that face, and left the face there because it showed the exact relation of our vein to the Osborne fault and the exact contention that we have that the vein goes up to the Osborne fault and is terminated by the Osborne fault, and at any point from that termination in the line, east end line of the Senator Stewart Fraction, would be a downward course.

Mr. GUNN.—That is all.

Witness excused. [1319—1275]

**[Testimony of Cyrus F. Tolman, Jr., for Plaintiff
(Recalled in Rebuttal).]**

CYRUS F. TOLMAN, Jr., recalled on behalf of the plaintiff in rebuttal, testified as follows:

Direct Examination.

(By Mr. DINES.)

Q. Professor Tolman, have you examined the actual exposure of the vein in the 400 level at the point testified to by Mr. Wiley and shown on the defendants' exhibit as blue Fir tunnel level?

Mr. GRAY.—I object; and call your Honor's attention particularly with reference to this witness, that that is not rebuttal, because this witness in his examination of the mine confined it to a distance of five or ten feet from this fault, and he gave the

(Testimony of Cyrus F. Tolman, Jr.)

courses there and testified to that area within a few feet of this so-called Osborne fault. He confined his testimony to that and declined to give testimony, or failed to at least, as to the great openings in the mine away from there. Now, I think as to Professor Tolman it certainly is not rebuttal. He has been over this ground himself before and confined himself to those little areas within a few feet of this—[1320—1276]

The COURT.—I shall overrule the objection.

A. I have examined the face in drift No. 405 east shown on that model.

Mr. DINES.—Please state to the Court whether or not you found there any evidences of drag ore.

A. That face is a remarkable example or showing of how clean the ore can be cut without having any drag whatever.

Q. Please describe to his Honor just the form in which the ore lies at that place against the Osborne fault.

A. I was present when a photograph of that face was taken, and that shows the relations much better than I can describe.

Q. You refer to Plaintiff's Exhibit—which of these exhibits do you refer to? There are several of them.

A. Plaintiff's Exhibit No. 17.

Q. Did you examine the sketch of Mr. Wiley that is identified here as Defendants' Exhibit "K," and the particular portion of the vein as it is exposed in the ground to which that sketch refers?

A. I examined that place and took notes on the dip

(Testimony of Cyrus F. Tolman, Jr.)

of the pay-streak or ore which is shown in this exhibit in red. [1321—1277]

Q. Please state to the Court whether or not the dip of nineteen degrees, I think it is, that is given by Mr. Wiley at that point is the correct dip of the vein.

A. I took that dip twice with a clinometer, once when the photograph was taken and once in a previous examination, and both of my dips were very close to 35 degrees, so close that I concluded the dip 35 degrees as being the nearest number to express it in figures of five or ten.

Q. Have you examined the models, Exhibits "X" and "Y" of defendants? A. I have.

Q. Introduced by Mr. Boehmer? A. Yes.

Q. Please state to the Court whether or not you think those models correctly represent the intersection between the vein and the Osborne fault at that portion and whether or not their intersection as shown on those models is a correct representation of the intersections as it exists in the ground?

A. In defendants' model Exhibit "Y" I found no such condition as represented at the intersection. This strike and dip apparently is taken from some long distance [1322—1278] away from that intersection is projected in a theoretically perfect plane which does not show either the dip or the strike of the vein as it approaches the Osborne fault. In the other case, with this model Exhibit "X," the celluloid gives a much better impression and is a closer representation of the actual conditions that occur along that intersection as I have seen them.

(Testimony of Cyrus F. Tolman, Jr.)

Q. Professor, did you hear the testimony of Mr. Searles and see his mathematical calculation?

A. I did.

Q. Is there any rule that you have developed by which you can consider the relation of dipping planes that intersect to the line of intersection and the line of intersection in relation to those so far as forming a top edge or bottom edge by the line of intersection?

A. I have formulated a definition which accurately described the condition as set forth in question.

Q. Will you please state what that is?

A. When a vein is intersected by a fault, if the vein and the fault where they intersect dip into the same quadrant, the axis of intersection constitutes a top edge or apex so long as the course or direction of the said [1323—1279] axis diverges in direction from the direction of the dip of the vein. It becomes a side edge when it coincides with the dip of the vein, and only becomes a bottom edge when it converges in direction with or towards the direction of the dip of the vein.

Q. Now, can you apply that statement that you have just made to the conditions as they are shown of the intersection as it actually exists or as nearly as you can get to its actual existence in the ground between the Stewart vein and the Osborne fault?

Mr. GRAY.—I object as not rebuttal. Professor has attempted to go into the same matter on his former examination; he went there and gave measurements and gave angles.

The COURT.—I think that he has been over that

(Testimony of Cyrus F. Tolman, Jr.)

in his direct examination; that is my recollection; he related that the point of intersection was the apex of the vein.

Mr. DINES.—Yes, sir, but at that time there was no development of the question of side edge, and on their case they have gone into the question, some of them bottom edge and some side edge and they put a mathematical proposition here by Mr. Searles to demonstrate it, and I wish— [1324—1280]

The COURT.—And the Professor has already countered on that, has he not?

Mr. DINES.—No, sir, not on that calculation in its application.

The COURT.—Well, I will hear it for the purpose of saving time. I want to get through with the evidence.

Mr. GRAY.—I do not see how it saves any time if I have to cross-examine him on all this over again that I went through once.

The COURT.—I will overrule the objection. [1325—1281]

Q. Now, have you prepared any figures by which you could apply the rule which you have stated?

Q. Yes, I have.

Q. All right, let us see what you have for an illustration.

(Witness produces two models.)

Mr. GRAY.—I desire at this time to renew my objection. Your Honor now immediately sees that it is not rebuttal. Originally it was claimed by the plaintiff in this case that the termination of the vein,

(Testimony of Cyrus F. Tolman, Jr.)

the edge of the vein against the Osborne fault, constituted an apex. It was contended, and considerable evidence—days of evidence—was introduced about that in support thereof. It was contended by the defendant, not alone upon this hearing, so that counsel have had ample notice—it was also contended upon the injunction hearing here, that it was either a side or a bottom edge of that vein. Now, they have made their case, and it seems to me that in rebuttal to go back over these same things, to produce other models, perhaps presenting what Professor Tolman has attempted to testify to originally in a different manner, is not rebuttal. I do not think the case should be opened up in the way that he indicated he is going to attempt to open it up to your Honor now by producing new models which he has made. The very purpose of this is to [1326—1282] carry out and to again go over the angles which he attempted to testify to on his previous examination, and your Honor will well recall that he went on each of those levels and pretends to give on each of those levels the course of the vein. He also pretended to give the course of the Osborne fault and its dip, and to give to your Honor certain angles which he apparently considered of some import or importance in the case at that time. Now, to come in another way and do it all over again it seems to me is not proper rebuttal. We will be going along here with repeated illustrations, first on one side and then on the other.

Mr. DINES.—Your Honor, I never heard before that what was presented in the form of *ex parte* affi-

(Testimony of Cyrus F. Tolman, Jr.)

davit and part of any cross-examination, under your Idaho practice, at an injunction hearing, was included or even became any element in determining what is or is not rebuttal.

Mr. GRAY.—I agree with you on that.

The COURT.—Well, I will overrule the objection. (Defendant excepted.)

Two models introduced by Mr. Tolman marked Plaintiff's Exhibits Nos. 20 and 21. [1327—1283]

WITNESS.—I wish to state that the mathematical demonstration as given by Mr. Searles shows that the angle C, A, D is not the same as the angle C, B, D, that is his demonstration, provided the vein is cut at an angle so that it is projected in that way. In other words, the angle of the intersection of the vein as it goes against any fault and the line of its dip is not the same exactly as the angle formed between the course of that intersection and the course of the dip as seen on the plane; therefore, it may be argued that we must confine ourselves to the plane of the section, and not to the map of the section, and therefore the proposition of my definition is attacked by that mathematics.

Mr. GRAY.—I object and move to strike out the last suggestion. It is not attacked by that mathematics.

The COURT.—Motion denied.

Mr. DINES.—That is what we asked the Professor to explain. We contend that the only application of the very simple equation that Mr. Searles put there and which he did not explain or apply, and I

(Testimony of Cyrus F. Tolman, Jr.)

apprehend now that your Honor did not understand how he applied it—I know I did not—he put an equation in which he had tangents and cosines, and the whole of that equation was—

Mr. GRAY.—Well, the Court declined to strike it out. [1328—1284] There is nothing before the Court.

The COURT.—Yes, I have denied the motion.

A. According to my definition of the side of a vein, if you look at the vein as shown actually underground, or if you look at any plane shown underground, if you look in a direction at right angles to that plane it is evident that the direction of the dip of that plane must be parallel to the direction of the edge of that vein, if this be a side edge. That is self-evident. Can you, however, not only take the plane as it stands up in the ground and take the map of that plane as shown in a projection on a horizontal plane? This line BC is parallel to the line of the intersection of the vein itself, or a line AC as placed there. The line BC is therefore the map of the side edge, and the line shown by this small arrow shows the direction of the horizontal plane of the dip, as shown by the arrow in the model to the left of A. Therefore, if this is the side edge, you can apply this rule to the map as well as to the actual planes, that if it is a side edge, the direction of the dip must be parallel to the direction of the intersection at the point of intersection. Take a case where we have a fault painted or shown on this side of the model, intersecting the plane so that it cuts the plane along

(Testimony of Cyrus F. Tolman, Jr.)

a line AD. If you confine [1329—1285] your attention now to the plane of the vein, and not to the map of the vein, you see that the line of the direction of the dip diverges in the ground as you go downward from the line of intersection as shown in this plane. According to his definition, then, that is a top edge. If you take the map of that same condition, you find that the map of the intersection or termination on this fault is shown by the line BD, because it is projected straight downward, and the map of the direction of the dip, the line AC is shown by the line CB. Now, it is true that the angle CAD is not the same as the angle CBD for the very simple reason that the line CB is shorter than the line AC, and a projection of the line AD is longer than the line DB; in other words, the two lines of the horizontal planes being shorter, the angle in here is thickened up. But, if you take these projections of the map on that level—mark a map on that model, you see that the same condition holds true. This is the direction of the dip, this is the course as mapped of the apex or top edge of the vein, and in this case the direction of the dip diverges from the direction of the intersection as shown on the map.

Q. Now, will you kindly, on this same model, show the Court the application of the rule stated by you where [1330—1286] you have a bottom edge?

A. In the case of a bottom edge, the rule stated, that if you have a bottom edge you must have the direction of the dip converging with the direction of the line of intersection, it is evident in this case, if you

(Testimony of Cyrus F. Tolman, Jr.)

have a bottom edge, that on this plane, the plane of the vein, if that condition exists, we will have a bottom edge in an exactly similar manner as this illustration is shown here if I project those lines downward, the line of the bottom edge straight downward and the line of the dip, they will also show the same relation, that going down in the direction of the dip, these lines converge.

Cross-examination.

(By Mr. GRAY.)

Q. Step up here, Professor. In other words, if you have a line, instead of the line BD, if the line was upon the base of this Exhibit 21, as I draw it in blue from the point B to the point E, the line BE would be a bottom edge projected onto the plane?

A. Certainly, if you take the point of the apex and at that angle. [1331—1287]

Q. Well, instead of making it BE, I will mark it FE from the point there of the apex.

A. Certainly.

Q. Showing upon the plane of the vein the line would be approximately from the point—if the line was as I have drawn it in blue from the point F?

A. This point F would be identical with the point A.

Q. That is a bottom edge?

A. That is a bottom edge, provided, as this plane does, you take the dip of the vein as I have shown it there.

Q. Exactly. Now then, Professor, let us go over here and take a look at the plaintiff's apex map.

(Testimony of Cyrus F. Tolman, Jr.)

The Exhibit 3, which has the figure 7 painted on it, and called the apex. Does that figure 7 nearly agree, as you have it delineated there, with the line upon the plane of that Exhibit 21 with the line EFG or with the line BDG.

Mr. DINES.—Now, you are putting marks on that model; you are changing the lettering.

Mr. GRAY.—I am putting letters on but I am not changing anything.

Mr. DINES.—I object to his changing them.
[1332—1288]

Mr. GRAY.—The suggestion that I have changed them is made simply to confuse the record.

Mr. DINES.—He has put the letter D on where there was a B. There are two D's there.

Mr. GRAY.—Show me the other D. It is not shown there.

Mr. DINES.—Right there.

Mr. GRAY.—That is an F, and has been referred to as F.

The COURT.—Yes, he has called it F.

Mr. DINES.—Well, if that is an F, I would have to take a spy-glass to distinguish it. If your Honor thinks it is an F, that is all right.

The COURT.—He has been calling it an F.

Q. What have you called it, Professor?

A. Well, the evidence will state.

Q. Come up and look at it.

A. It looks like E to me. You had better make it F plainer.

(Testimony of Cyrus F. Tolman, Jr.)

Q. Now, having attempted to cover up the question—

Mr. DINES.—No, I did not do that.

Q. I will repeat it. Does the figure 7 marked in red and delineated as an apex upon Exhibit 3 agree more nearly with the line GFE or the line GFD?
[1333—1289]

A. That comparison cannot possibly be made, because this line G and so-called F represents the strike of the intersecting plane at that apex, while this line which would be shown from the point of this apex in this direction here is an entirely different thing, and is a function of the intersection of a portion of the apex with the surface of the ground, another portion with the Clancy fault, and again with a curved condition of the veins.

Q. I did not ask you anything about that; I am asking you simply whether or not a line GFE agrees more nearly with that figure 7 that has been painted there than it does with the line GFD?

Mr. DINES.—I submit the witness has answered. You cannot compare them, because they are different things.

The COURT.—He has answered, yes.

Mr. GRAY.—He has declined to compare them.

Mr. DINES.—Because they are different things.

Q. If the angle between the intersection on the strike of the vein and the projection of the line of intersection on a horizontal plane were an acute angle, would it not also be an acute angle in the plane of the vein?

(Testimony of Cyrus F. Tolman, Jr.)

A. Not necessarily so. [1334—1290]

Q. I want you to explain that.

A. The angle CBD is larger than the angle CAD.

Q. Yes.

A. If this line should be brought out so that this angle would go out in a direction at an angle of 45 degrees, that angle would no longer be an acute angle; the angle of the projection would lie along very closely that same line, and so it is not necessary that both angles, one would be acute and one obtuse.

Q. It is not necessary?

A. No, I mean that it is not necessary that both be acute.

Q. You say, as an instructor in the Leland Stanford, Jr., University during the years 1912 and 1913, that if the angle between the intersection of the strike of the vein and the projection of the line of intersection on the horizontal were an acute angle, that it would not also always remain an acute angle in the plane of the vein?

A. Why, certainly. I misunderstood your question.

Q. Then you go back and agree with me, do you not? A. I do. I misunderstood.

Q. You desire to correct your other testimony? [1335—1291]

A. I do. I thought you had reference to the opposite planes. If the angle—I can explain it.

Q. There is no need to explain.

Mr. DINES.—Let him explain.

The COURT.—Yes, let him explain.

(Testimony of Cyrus F. Tolman, Jr.)

A. If the angle CBD is an acute angle, it is evident, without any reference to mathematics, that this angle being less, must also be an acute angle.

Q. It must always be an acute angle?

A. Absolutely.

Q. Then Mr. Searles' demonstration here was correct, was it not?

A. Certainly. Its application was—

Q. Well, you will permit the Court perhaps, to apply it. Professor, you have inspected this place where Mr. Wiley made a sketch and where Mr. Frank has taken a photograph? A. Yes.

Q. And that is the little crosscut which is shown here at the point F on the Stewart tunnel level?

A. That is one of the places that we took a photograph, and that is the place that Mr. Wiley took his sketch. [1336—1292]

Q. That is the place that you have testified to?

A. Yes.

Q. Now, Professor, how far was it from the bottom of the drift on the right-hand side of the crosscut or whatever you call it, to the bottom of the vein there; take the photograph; it has been colored by your assistance?

(Witness took Mr. Wiley's sketch.)

Q. No, never mind this. Take this and give it to me. A. The vein is.

Q. Read my question. You have your notes. If you please answer from them.

Mr. DINES.—I object to that.

(Testimony of Cyrus F. Tolman, Jr.)

Mr. GRAY.—I want the Professor's original investigations.

Mr. DINES.—I object to counsel for the defendant taking the exhibit from the witness by force.

Q. From your notes how far is it from the bottom of the drift on the right-hand side, as shown in the sketch, to the bottom of the vein; now, turn to your notes where you have that?

A. My notes of that read that the ore streak is 30 inches at the rule, that that rule is oxidized below, and [1337—1293] that the Osborne fault shows on the north side of the drift.

Q. Now, answer the question; how far is it from the bottom of the drift to the bottom of the vein as disclosed there?

A. That would be shown by the projection; it is within a few feet of it as near as I can tell, to the Osborne fault. The Osborne fault shows in the other side of the tunnel, or of the drift, on the north side of the drift.

Q. I am speaking of this little crosscut depth on the map. A. I can scale it on the map.

Q. It is too small to scale, isn't it?

A. No, it is not.

Q. How far from the bottom of that crosscut is the bottom of the vein disclosed therein on the right-hand side? A. I should estimate it at about two feet.

Q. Now, take it on the left-hand side, Professor.

A. The bottom of the vein—the vein goes up against the Osborne fault which is shown going along this level, and from the bottom of the drift I should

(Testimony of Cyrus F. Tolman, Jr.)

say it would be [1338—1294] about two feet there.

Q. Well, if it is two feet on both sides, then it must be level in between, isn't it?

A. Well, it is about two feet on the right-hand side, and I imagine that it would be a little more on the left-hand side, because the ore strikes somewhat different from the direction of the crosscut.

Q. Now, to make it a little more plain, let us take this sketch up to his Honor, where you can point out these things. On Defendants' Exhibit "K" from the point A to the point B, how far is it?

A. Oh, no, that is not the bottom of the vein.

Q. Well, answer my question.

A. I will answer that question and make out the point, that this is simply the ore streak, and this is not the bottom of the vein. The fault would come back from here, from that distance.

Q. How far, from your investigation up there, Professor, was there between those two points?

A. I did not measure that distance.

Q. How far was it from the point at the bottom of the drift where I have marked the letter C to the point D, the [1339—1295] bottom of the ore?

A. I did not measure that. That point of the drift is covered up in the bottom; there is a great deal of broken material—

Q. You knew where the bottom of the drift was?

A. Yes.

Q. How far was it?

A. I didn't measure that point; I took the dip of

(Testimony of Cyrus F. Tolman, Jr.)

that ore streak as I testified.

Q. All right. How high was the opening there from the foot to the bottom of the cap?

A. About five feet, the average height.

Q. For how much of that distance in lateral extent was that ore streak exposed there?

A. About the width of that—the bottom exposure or the—

Q. Along in that section?

A. In that drift, that little crosscut, as you look forward into this little crosscut as shown from a point in the level to a point to the right of that crosscut, it would be about seven feet here, and allowing for the curve a couple of feet more, it would be nine feet.

Q. Now, the ore was approximately, however, as shown [1340—1296] in Mr. Wiley's sketch, was it, Professor?

A. The ore as shown in Mr. Wiley's sketch is probably correct, but what I objected to is the dip of that ore. The only thing I could observe there as to dip was 35 degrees.

Q. Now, you took the dip of that ore streak as disclosed in there?

A. 35 degrees, yes, sir.

Q. Tell the Court how you got a dip of 35 degrees upon that ore streak that you say is approximately sketched correctly on Mr. Wiley's Exhibit "K," where it is exposed for a distance of eight or nine feet in length and for a distance of only five feet in height, and show where you took that course upon

(Testimony of Cyrus F. Tolman, Jr.)

the sketch; designate it on the sketch how you got that amount of an angle?

A. That angle has nothing to do with the dip, because it was not drawn at right angles.

Q. Well, you take the ore streak as you find it in there, and you said you had the dip, and I want to know how you took it?

A. I have the dip of the ore streak as 35 degrees in a southerly direction. This face, as you would look across it, would be approximately parallel or approximately at right angles with the little working. That little working [1341—1297] does not represent the dip of the ore, and therefore the angle as shown here in the sketch is less than the true dip, and therefore that sketch as shown does not show the direction of the dip.

Q. Then you, in taking this course which you have just testified to, took it across the little drift, did you?

A. I took that course.

Q. Through the opening?

A. I took that course as shown by the plunge of that ore going down there, and it is not *as* right angles to the direction of this dip.

Q. Tell the Court whether or not you took it across the drift.

A. No, I went into the face, where it is shown.
[1342—1298]

Q. And where the ore ceases exactly as shown by Mr. Wiley's sketch?

A. That would be a section of it.

(Testimony of Cyrus F. Tolman, Jr.)

Q. Across that section where do you get this dip of thirty-five?

A. This section is not the dip of the vein. In taking the dip of the vein we take the steepest angle downward.

Q. Do you say to his Honor that if you have a section such as that you cannot indicate to him upon it where you can get your dip of thirty-five degrees?

A. Certainly not; I cannot indicate on this section because it is not in the direction of the dip.

Q. And yet you said to his Honor that in this little crosscut or drift where the vein is disclosed going up against the Osborne fault that you took its dip there and that it was thirty-five degrees?

A. Certainly, but it is not in the line of this section.

Q. As a matter of fact, you could not get a dip of thirty-five degrees upon that section, could you?

A. On that section certainly not. [1343—1299]

Q. What is the course of the vein at that point, Professor?

A. That is simply an ore streak. It does not give the course of the vein.

Q. You took a good many through ore streaks, the course of the vein along this Osborne fault; didn't you take this one? A. I took this one, yes, sir.

Q. Give that to us.

Mr. DINES.—What is the question, the course of the ore streak or the course of the vein?

Mr. GRAY.—Yes, whatever he took the dip of; I want to get the course of.

A. In this little crosscut as shown in this face the

(Testimony of Cyrus F. Tolman, Jr.)

direction of dip makes the direction—

Q. Oh, I did not ask you the direction of the dip; I asked you the course of the vein.

A. Well, the strike of the vein—not the strike of the vein but the strike of that ore streak is north sixty degrees east.

Q. Is not the crosscut run square with that, and therefore shows the true dip, and didn't you disregard that in [1344—1300] giving your testimony, in criticising Mr. Wiley's section? Take the course of that little crosscut and see if that is not true. Here is a protractor, Professor.

A. The course of that crosscut as shown by the whole length is east 25 degrees to the north—the direction of that is north 20 degrees west.

Q. That would be south 70 east?

A. Yes, south 70.

Q. Within four degrees of what you say—

A. No, I beg your pardon; it would be ten degrees off there.

Q. You said it was 66, didn't you? A. Sixty.

Q. Well, I would like to refer to that testimony again. Will you please read it? I understood you to say sixty-six. A. Sixty degrees.

Q. Where are your notes on that, Professor, and we will see if they do not show 66. Here they are right there. Is not that south sixty-six east?

A. No, sir.

Q. What is it—sixty-five? [1345—1301]

A. Yes, sir, sixty-five.

Q. Well, then, sixty-five? A. Yes, sir.

(Testimony of Cyrus F. Tolman, Jr.)

Q. Professor, that little crosscut is how long?

A. I will scale it. As nearly as I can scale it about eight feet.

Q. What difference, Professor, would the difference of that ten degrees make in that eight feet?

A. That is not all of the question—

Q. Just answer that, if you please.

A. The face is not a true face in that it is curved, and if that was taken in a theoretical perpendicular line to that line of strike it would not make very many degrees, probably not more than five degrees, as a guess, difference.

Q. How much difference would it make throughout that length in inches or tenths of inches, approximately?

Mr. GUNN.—Can you not allow the examination of Mr. Winchell to go on?

Mr. GRAY.—Yes, sir, I am perfectly willing that he should figure that out.

Witness temporarily excused. [1346—1302]

**[Testimony of Horace V. Winchell, for Plaintiff
(Recalled in Rebuttal).]**

HORACE V. WINCHELL, recalled on behalf of the plaintiffs in rebuttal, testified as follows:

Direct Examination.

(By Mr. DINES.)

Q. Mr. Winchell, have you examined the face of the Fir tunnel level at the point where it comes in immediate contact with the Osborne fault and the appearance of the vein and the fault at that point?

(Testimony of Horace V. Winchell.)

A. Yes, sir, I have.

Q. Please state to his Honor whether or not there are any evidences of drag ore at that point.

A. I saw none. The ore which is developed there is in the vein and continuously within the vein for some distance to the westward and lies upon the hanging-wall of the Osborne fault inclined from its upper edge, that is, the upper edge of the ore inclined downward to the southwest. The fault claim is seen in the lower northeastern corner of the face of the drift and there is no drag material nor fault material above it.

Q. Are you familiar with a vein known as the No. 2 [1347—1303] vein, I think it has been called to attention to once or twice in the testimony?

Mr. GRAY.—Objected to as not rebuttal. Mr. Winchell is the only one that has testified to it.

Mr. DINES.—It is simply preliminary. I think I can show its application; it is not developed yet.

The COURT.—I will allow the introduction.

A. I am.

Mr. DINES.—Q. Did you hear the testimony of Mr. Wiley in reference to the attempted connection of the Stewart vein where he placed a pointer through what is called the vent here in attempting to connect the Stewart vein with the vein that is disclosed in the upper Stewart tunnel?

A. I heard his testimony.

Q. What is it that separates the portion of the vein that he referred to in his testimony to the northwest from the Stewart vein?

(Testimony of Horace V. Winchell.)

Mr. GRAY.—I object. Mr. Winchell went into that, and testified as to the Clancy fault, said he did not know what the throw was on that.

Mr. DINES.—I understand. I can show the application [1348—1304] of this question.

Mr. GRAY.—This is really under the theory of rebuttal attempting to try the case over here and impress it upon your Honor.

Mr. DINES.—If your Honor wishes me to state it, I can state it to you.

The COURT.—I will overrule the objection.

Mr. DINES.—Q. What is it?

A. The Clancy fault.

Q. Now, if the portion or mass of the country including the portion of the vein shown in the upper Stewart tunnel and separated from the vein shown in the Stewart workings by the Clancy fault, is adjusted and correlated, what effect would it have on No. 2 vein with reference to apex within the side lines of the Senator Stewart Fraction?

Mr. GRAY.—I do not see that that is rebuttal or has anything to do with the case. Mr. Winchell and Mr. Wiley have disagreed—

Mr. DINES.—I am taking Mr. Wiley's assumption now and showing what it leads to; it is not any new theory of ours. [1349—1305]

The COURT.—I will overrule the objection.

A. If the segment of the earth above the Clancy fault which was referred to by Mr. Wiley as containing in the Samuels ore body the uppermost segment of the Stewart vein, were replaced so that it occupied

(Testimony of Horace V. Winchell.)

its original position before the movement along the Clancy fault had taken place, we should at the same time have the No. 2 ore body brought forward very close to a physical connection with the vein now disclosed in the Apex drift and we should have an east and west vein for a distance of several hundred feet upon the surface or near it in that portion of the Senator Stewart Fraction claim.

Q. Would there be any more difficulty in correlating No. 2 vein with the apex as you have described than in correlating the workings in the upper Stewart tunnel with the workings in the Stewart mine on the Stewart vein?

A. There would be less difficulty.

Q. Explain to his Honor why less.

A. Because of the relative positions in the ground; the No. 2 ore as seen by me in 1906 strikes easterly and westerly and was then disclosed on the 35 foot *foot* level and upon the old lower Stewart tunnel level extending in a [1350—1306] direction which is continued without interruption will bring it to a connection with the apex as shown in the Apex drift. The distance and the position are such that we have a relation upon strike rather than a relation upon dip such as that which now obtains between the Samuels ore body and the uppermost portion of the stopes in the Stewart vein.

Q. Then, if that correlation is made, what would be your total length of east and west, not considering the Clancy fault at all, if you go through it in one case, going through it in the other, through your east

(Testimony of Horace V. Winchell.)

and west line? A. Perhaps five hundred feet.

Q. What body of ore is this in red above the old lower Stewart tunnel in defendants' model?

A. That is a floor of a stope upon the No. 2 vein or ore body to which I referred which has an easterly and westerly strike.

Q. And what is the body colored in yellow on Defendants' Exhibit 1—Plaintiff's Exhibit 1 and marked 35 level?

A. That represents the same working.

Q. I will ask you, Mr. Winchell, if you have had an [1351—1307] opportunity to examine the model introduced by the defendants, I believe, as Defendants' Exhibit "L." A. I have examined it.

Q. Will you please point out in that model any inaccuracies or deficiencies either in its design or in the model itself or in any portions of the model that will enable you to discuss to the Court the question of its bearing upon the issues in this case, in your own way and without further questions about it?

A. This is a very good model as far as it goes and as far as the vein in the ground could be disclosed with the information in the possession of the defendants and the type of model used. It has a number of inaccuracies and some which perhaps I should criticize as not correctly representing conditions now disclosed in the ground, but the first and fundamental and most apparent defect in this model is the absence of stopes. It is made upon horizontal plans situated at a considerable distance from each other in the ground and manifestly cannot clearly and accurately

(Testimony of Horace V. Winchell.)

portray the dip of ore bodies, of faults, of structural features in the ground between the points of intersection of those horizontal plans placed so far apart. [1352—1308] The advantage of stopes is clearly seen where the Frank and the Gray stopes are introduced as shown upon the model. There we get at once a picture of the position of the vein. Now, if the other stopes were placed between the levels as illustrated upon one plan, upon Plaintiff's Exhibit 2, we would have a picture of them in three dimensions upon Defendants' Exhibit "L," and we would at once and readily see the relation in strike and dip which is not disclosed upon this model as it stands. A cross-section model such as Plaintiff's Exhibit 15-A and constituted of vertical sections parallel to each other, no matter what the angle of those sections through the ground, placed sufficiently close together will give as nearly correct a view on looking through as possible to represent in the absence of a solid, concrete or wooden built-up model. The glass section model gives you this picture of the interior condition just as though the ground were transparent, and you were looking through it, and all of the conditions disclosed upon the sectional model 15-A can be seen, but not so readily upon the same portion of territory which it covers upon this model so far as the model represents those conditions. We can get the same idea of a dip downward [1353—1309] toward the Osborne fault by taking a view upon Defendants' Exhibit "L" from the ore body in the top of the Samuels raise toward the Osborne fault that you can get in

(Testimony of Horace V. Winchell.)

either model. It makes no difference. There is no misrepresentation or distortion nor improbability, nor attempt to deceive, it is just as clear and fair and correct a representation of the structural relations between the vein and the ore in it and the Osborne fault as could be prepared.

I should like to call attention to the fact that the Apex drift in its westerly portion is shown colored blue with one or two almost invisible red dots upon Defendants' Exhibit "L"; that that drift discloses a very excellent quality of ore—galena—that it is admitted generally to be upon the vein, that no one going there and seeing it could doubt that it is upon the vein, and yet it is colored blue upon this model. There are other places, many of them, where such details as that perhaps tending upon the whole to convey a minimized idea as to the thickness of the vein or its real position as shown upon Defendants' Exhibit "L," but the principal defect in this model is the fact that from it without the stopes it [1354—1310] is impossible to gain a satisfactory and correct idea as to the dip of the vein in its relation to the Osborne fault.

Q. In the model, what can you say about the way the vein is carried up along the intersection as shown in this model?

A. Almost invariably there is an error at the point of intersection of the vein by the Osborne fault, due, however, largely to the fact that this celluloid sheet is not placed where it ought to be. For instance, upon the 300 level the celluloid sheet which is nat-

(Testimony of Horace V. Winchell.)

usually taken to represent the plane of intersection of the vein by the fault is at a distance of some twenty feet away from that intersection. It should be south and west of the dip instead of north and east of it. The same is true upon the 200 level. Here the raise 218 east has been described by witnesses for both plaintiff and defendant as disclosing along it the Osborne fault, but that raise is entirely upon this model in the hanging-wall side of the Osborne fault at a distance of twenty feet from the actual plane of intersection. Consequently this red paint in its relation to the hanging-wall plane of the [1355—1311] Osborne fault is not correctly represented upon the model and the model itself is not entirely consistent on that point as to the workings in wood and the celluloid sheet. Moreover, the warping of the celluloid sheet which was said to represent as nearly as possible the correct position and changes in strike and dip of this hanging-wall would be very different if attached to the other side of these drifts where it should be attached; therefore, in that respect the model is manifestly inaccurate. I might add, the model does not and cannot show the upward extension of the ore upon each level and above each level at the intersection of the vein by the Osborne fault. It only shows what is shown for the height, it only purports to show what is disclosed by the actual height of the working upon the levels and not between.

Q. Have you seen the models, Exhibits "X" and "Y" prepared by Mr. Boehmer and introduced in

(Testimony of Horace V. Winchell.)

connection with his testimony?

A. I have seen them.

Q. Please state to the Court whether or not in your opinion the intersection between the vein and the Osborne fault as shown in these models gives a correct representation [1356—1312] of the intersection as it actually is in the ground from the developments that have been actually made there.

A. No; those models do not represent the actual conditions. I take it that those models are simply diagrammatic. They do not represent actual conditions any more than a dollar sign represents the money in the bank. They represent theoretically and ideally intersections at certain definite angles and the angles given there differ very materially from the angles in the ground and the angles shown upon Defendants' Exhibit "L."

Q. Take for instance the dip of the Osborne fault of 58 degrees and 34 minutes as shown on those models.

A. It takes but a moment to compare the dip of 58 degrees and 34 minutes with the dip actually shown upon the edge of this celluloid sheet at various points ranging from sixty to eighty degrees.

Q. By the celluloid sheet you last referred to was the celluloid sheet on the defendants' model—

A. Exhibit "L."

Q. "L." Did you see the cross-section of Mr. Searles, the cross-section that he prepared?

A. Yes, sir, I saw it. [1357—1313]

Q. One moment, before we begin I wish to ask one

(Testimony of Horace V. Winchell.)

other question about the other. Defendants said by one of the witnesses here, I think by Mr. Boehmer, in reference to the plaintiff's model A-15 that the only way you could show the relations between that vein and the fault, or the best way you could show it, would be by horizontal sections, a model formed in that way. What do you say as to that statement?

A. Unless such sections are transparent and placed in their correct position in relation to each other and taken very closely together, they cannot represent so clearly relations of dip as vertical sections.

Q. Now, I will ask you, please, to discuss the cross-section that is identified as Defendants' Exhibit "R" introduced by Mr. Searles and make any statements concerning that that you desire to make.

A. The first criticism which I should make of the section identified as Exhibit "R" and the sections introduced by other witnesses for the defendants is that upon these sections the thickness of the vein appears to be from six to eighteen feet, and we know from many disclosures in the ground, from many stopes and crosscuts that the [1358—1314] vein has a thickness frequently of more than thirty feet. In that respect, therefore, these sections do not represent the vein properly and accurately. In the next case, the only purport of this section seems to me to be to represent a downward course from some point in the vein to the major fault as it is called on this section, or what we call the Osborne fault. The section as taken along the western end line of the Ontario claim. It is only necessary to imagine that we

(Testimony of Horace V. Winchell.)

take a series of sections upon axes, rotating upon an axis around the northwestern corner of the Ontario to show that we should very soon arrive at a section starting at the uppermost portion of the stopes above the old lower Stewart tunnel level, from which necessarily the vein would descend to a point where we know it upon the 400 level some 350 feet deeper in the ground, and such a section illustrates the fact that there might be any number of sections and if the various little faults in the ground, like the No. 11 fault, were observed and placed in their proper position we should have some of these upper edges, or somewhere in the section, the vein against one of these minor faults. It is not taken parallel to the east end line of the Senator Stewart Fraction claim. [1359—1315]

Q. Now, the cross-section of Mr. Wiley's; is there anything further you wish to say as to that? You have spoken of it in a general way.

A. The principal objection I have to it is that it does not represent the vein in its thickness; it represents possibly at some points the thickness of the ore as stoped.

Q. Please state to the Court whether or not an assembly of cross-sections taken in planes such as Defendants' Exhibit "R" would represent what is shown here if taken parallel planes—vertical planes?

A. It would not. An assemblage of such cross-sections taken at any angle whatever through this ground, if placed parallel to each other or in their relative position to each other and transparent, would

(Testimony of Horace V. Winchell.)

show the true conditions in the ground and would not disclose singly, as shown singly upon this Exhibit "R" the downward inclination to the east, or toward the Osborne fault.

Q. Would that be true in reference to the cross-section that was introduced by Mr. Wiley, the one that was introduced with his testimony?

Mr. GRAY.—It is a cross-section through the line 5-5. [1360—1316]

Mr. DINES.—Q. Here it is. I show you a cross-section introduced in connection with Mr. Wiley's testimony and identified by him and marked Defendants' Exhibit "J." Will you please tell me what an assembly of cross-sections like that would show; I mean made on vertical planes parallel to the plane on which this section is made?

A. Well, in what respect?

Q. Well, would it show the same condition that is shown here if you take a series of them and took them all through this property?

A. There is a large amount of projection upon this section and it does not correspond with my conception as to the dip of the vein at various points, and the displacement along the Clancy fault. I have no reason to think from anything that I have seen in the ground that the vein *belong* the upper Stewart tunnel level has any such dip. My observations show it to have a dip of seventy degrees and that would make the apparent displacement upon this line of sections much greater than shown upon the section Exhibit "J" which appears here to be about sixty

(Testimony of Horace V. Winchell.)

feet. If the vein with a dip of seventy degrees as shown ten or fifteen feet below the upper Stewart tunnel level extends [1361—1317] downward, we should have three times the displacement which appears upon this plane or section—upon this section as introduced.

Mr. DINES.—That is all.

Cross-examination.

(By Mr. GRAY.)

Q. A vein going down at that angle, it would have less displacement than the displacement between the Gray and the Frank ore bodies?

A. There is no displacement between the Gray and the Frank ore bodies if you follow them up upon their dip. They come directly together in the stopes.

Q. Considering them in the Ontario ground and on the Fir tunnel level. A. That is true.

Q. The displacement would be greater than the displacement of that vein on the Clancy fault, even *producing* it down at seventy degrees.

A. It would be just the same.

Mr. GRAY.—That is all.

Witness excused. [1362—1318]

[Testimony of Cyrus F. Tolman, for Plaintiff
(Recalled in Rebuttal).]

CYRUS F. TOLMAN, recalled on behalf of the plaintiffs in rebuttal, testified as follows:

Cross-examination (Resumed).

(By Mr. GRAY.)

Q. Have you figured that out, Professor?

A. The difference of a section of sixty inches,

(Testimony of Cyrus F. Tolman.)

scaled in this place here, would be practically seven inches.

Q. Then you would only have to take a point seven inches off of Mr. Wiley's section in order to get what you would determine to be a true dip, wouldn't you, in there? A. That would be true, yes, sir.

Mr. GRAY.—That will be all, Professor.

Witness excused.

Mr. DINES.—I think all of our exhibits are introduced, your Honor.

The COURT.—They will be all considered introduced.

Mr. GRAY.—On both sides?

The COURT.—Yes, sir, on both sides. [1363—1319]

Whereupon a recess was taken until 2:00 o'clock P. M. of this day, Thursday, January 16, 1912.

Thursday, January 16, 1912, 2:00 o'clock P. M.

Trial resumed.

Mr. DINES.—May it please the Court, by the courtesy of the opposing counsel, Professor Tolman desires to make a correction which we would like to make; it seems that he misread a certain note that he took hurriedly in the course of the photograph and did not turn to his geological notes and he wishes to make a correction, your Honor.

The COURT.—Very well.

[Testimony of Cyrus F. Tolman, for Plaintiff
(Recalled in Rebuttal).]

CYRUS F. TOLMAN, recalled for further examination, testified as follows:

(Testimony of Cyrus F. Tolman.)

Direct Examination.

(By Mr. DINES.)

Q. In giving the course of the vein at the point concerning which you were last interrogated, Professor Tolman, [1364—1320] do you desire to make some correction in the reading of the course of the vein? A. I do.

Q. Please explain to the Court when the note from which you now read was made and in what connection.

A. The note which I now read is the course on my geological map which I checked up and differs from the course which I took from the photograph which I did not check up. The correct dip is practically due south, so that the direction of the ore streak would be east and west instead of as I gave it.

Cross-examination.

(By Mr. GRAY.)

Q. Turn to your other notes, Professor.

A. Yes, sir, they are incorrect.

Q. They were made by you from your observations? A. They were, but they were not platted.

Mr. DINES.—Not correct.

Mr. GRAY.—But those were the observations that you made?

A. I made both observations. [1365—1321]

Q. That is the course of the vein, south 65 west?

A. No, I beg your pardon; I took two directions; I took a direction on the picture which was shown as south 65 west and I took a strike of the vein as north 60 west.

Mr. DINES.—Q. And the ones that you have last

(Testimony of Cyrus F. Tolman.)

read were not the ones which you had platted and corrected on your geological notes? A. No.

Mr. GRAY.—Q. But they were the ones which you used? A. Yes, they were the ones which I used.

Witness excused.

Thereupon the following evidence was introduced in sur-rebuttal. [1366—1322]

**[Testimony of Walter H. Wiley for Defendants
(Recalled in Sur-rebuttal).]**

WALTER H. WILEY, recalled on behalf of the defendants, in sur-rebuttal, testified as follows:

Direct Examination.

(By Mr. GRAY.)

Q. I hand you Defendants' Exhibit "Z," a sample of ore. Did you take that sample?

Mr. DINES.—We object to this as not sur-rebuttal. We did not introduce this sample.

The COURT.—The objection will be overruled. I suppose it is in connection with the—

Mr. DINES.—It is the sample as I understand shown Mr. Frank?

Mr. GRAY.—Yes, sir.

Mr. DINES.—My proposition is that they cannot build up by showing a sample to Mr. Frank, they cannot build up sur-rebuttal, unless it is a part of Mr. Frank's testimony in rebuttal.

The COURT.—I will strike it out unless it is. I cannot tell what it is until I hear it.

Mr. DINES.—Mr. Frank did not identify it. It certainly [1367—1323] cannot contradict anything that he said, because he did not identify it.

(Testimony of Walter H. Wiley.)

Your Honor will remember that he said he could not take a piece of ore and identify it unless he knew where it was taken from, so it cannot be to contradict him, and unless it is to contradict him, it would not be sur-rebuttal.

The COURT.—If it does not contradict him, I will strike it out; I cannot tell until I hear the evidence. You may proceed, Mr. Wiley.

A. I took this sample from the Fir tunnel level, from the easterly drift of the short drifts driven upon the fault on the exact breast of that drift.

Mr. GRAY.—Q. Mr. Wiley, is that in your judgment drag?

Mr. DINES.—We object to that. That has been gone over in part of their case, and they cannot in rebuttal simply pile up on that more matter. He has testified to that particular place, and the rebuttal was rebuttal to the matter that he brought up, and now he comes in again and asks him the same question that was asked him on his direct examination as part of the defendants' case.

Mr. GRAY.—Now, if your Honor pleases, originally they [1368—1324] produced Mr. Frank and a number of other witnesses and they claimed that that was vein there. Mr. Wiley gave then in defense his opinion that there was in this place nothing but drag. Mr. Frank has come back again and then, in a very liberal interpretation of rebuttal, of what was rebuttal, your Honor permitted him again to say that it was not drag and that it was vein, and now after the sample was shown Mr. Frank I desire to have Mr.

(Testimony of Walter H. Wiley.)

Wiley explain to your Honor what that sample indicates to him, that it is drag. He has identified the place from which it came. Now, they have chosen to go back into this question, which I thought was a part of their original case, and we should be permitted to introduce this sample and show to your Honor the reasons why Mr. Wiley feels that he is justified in stating it is drag.

Mr. DINES.—In support to the objection I made, your Honor, I call your attention to the fact that Mr. Wiley designated it for the first time it had designated as drag in his testimony as part of the defendants' case. The rebuttal was admitted because we had a right to rebut Mr. Wiley's statement that it was a drag, and now, on sur-rebuttal, he comes in and wishes to reiterate that it is [1369—1325] drag, and I submit that that is not sur-rebuttal, and we object to the question and the answer on that ground.

The COURT.—I shall sustain the objection.

Mr. GRAY.—Q. There is one thing that I desire to make entirely plain to his Honor. The sketch, Mr. Wiley, which you made and which has been identified as Defendants' Exhibit "K" and concerning which Professor Tolman has given some testimony; will you state to the Court whether or not that was taken along the dip of the vein as disclosed in that working?

Mr. DINES.—I object to that as not sur-rebuttal.

Mr. GRAY.—If your Honor pleases, Mr. Wiley testified that he made it at this particular place. Professor Tolman, under their theory of what is rebuttal, came in and has testified that that is not

(Testimony of Walter H. Wiley.)

along the dip, although the observations which he made in the ground and which he read to your Honor do show that it was along the true dip but he has attempted to plat them upon the map and says from plotting it it is not along the true dip, or it is within approximately one degree according to the observations which he made in the ground, that is, when he gave the course of south sixty-five or sixty-six west, some [1370—1326] place along there, or sixty; I want Mr. Wiley to clear up that one matter as to whether he took it along the true course.

The COURT.—I will overrule the objection.

Mr. GRAY.—Just explain that in your own way.

A. The sketch is made along the side of the crosscut. The crosscut is run at right angles to the drift which follows the strike of the vein, so that that portion of the vein shown in this sketch does correctly represent the true dip of the vein as shown in the side of this little crosscut.

Q. That portion of the vein which is shown in there—upon that portion of the vein which is shown in there the ore as you have marked it there—could a course showing a dip of thirty-five degrees be secured, Mr. Wiley, or taken? Have you a protractor? Just indicate to the Court whether or not you could take a course of thirty-five degrees there.

Mr. DINES.—I submit Mr. Wiley testified to the dip of that place in his other examination, and he is asked to testify to the dip now.

Mr. GRAY.—I am simply determining whether or not it [1371—1327] would be possible to get such a

(Testimony of Walter H. Wiley.)

dip as Professor Tolman has testified he found there.

The COURT.—I shall overrule the objection.

A. The bottom of my protractor is now set on a dip of thirty-five degrees. The length of the crosscut is about eight feet; its height a little over five. If a body of ore thirty inches or more in thickness or thirty inches in thickness were disclosed near the face of this crosscut and at a space of a foot above the floor of this crosscut and it had a dip of thirty-five degrees on the under side, the under side of this body of ore would not reach the drift at all; in other words, if it were as steep as that it would be impossible to see both ends of this vein if it had a dip of thirty-five degrees.

Mr. GRAY.—That is all.

Witness excused.

Mr. GRAY.—We rest.

Testimony closed. [1372]

State of Idaho,

County of Shoshone,—ss.

We, the undersigned, George H. Macdougall and A. W. Deavitt, hereby certify that the above and foregoing transcript is a true and correct copy of the testimony taken at the trial, and proceedings had thereat, and all thereof, in the case of Stewart Mining Company, Plaintiff, vs. Ontario Mining Company, Stanly A. Easton and Myron A. Folsom, Defendants, No. 3235.

GEO. H. MACDOUGALL,

A. W. DEAVITT,

Deputy Official Court Reporters. [1373]

It is hereby stipulated and agreed by and between the respective parties to this action, acting by and through their respective attorneys of record herein, that the foregoing transcript containing in all 1396 pages contains a full, true and correct copy and transcript of the original files and records in said action as the same now remain on file and of record in the office of the Clerk of the District Court of the First Judicial District of the State of Idaho, in and for the County of Shoshone, and we do further certify that the same contains every matter and thing whatsoever (except exhibits which are separately certified by the Clerk of said Court) used or considered by the District Court or the Judge thereof upon the hearing had in said cause upon the motion of the plaintiff, Stewart Mining Company, for a new trial of said action including the complaint in said action, the answer and cross-complaint of the defendants thereto, the answer to the cross-complaint, the supplemental complaint, the findings of fact and conclusions of law, the judgment, notice of intention to move for a new trial, order denying motion for a new trial, certificate of papers used on motion for a new trial, notice of appeal and acceptance of service thereof, undertaking on appeal, order re exhibits, bill of exceptions relating to refusal of the Court to [1374] make the findings of fact and conclusions of law proposed by the plaintiff and appellant, Stewart Mining Company, also the testimony of the following witnesses adduced by either of the parties, to wit: M. W. Bacon, William Beaudry, Max Boehmer, Fred W. Calloway, William Clancy, Stanly A. Easton,

Alfred Frank, Fred T. Greene, William H. Herrick, Oscar H. Hershey, George A. Kennedy, Andrew C. Lawson, Clayton Miller, J. M. Porter, Fred Searles, Jr., Walter G. Swart, Cyrus F. Tolman, Jr., Walter H. Wiley, Sidney L. Shontz, and Horace V. Winchell, which testimony constitutes all of the testimony adduced at the said trial by either party and constitutes and is a full, true and correct transcript thereof.

It is further stipulated and agreed that the foregoing transcript shall have the force and effect of a bill of exceptions duly settled and allowed, and shall be deemed adequate to present for review any ruling appearing therein, all objections to the form of said transcript being hereby expressly waived.

TYSON S. DINES,

Denver, Col.

GUNN, RASCH & HALL,

Helena, Mont.

CULLEN, LEE & HINDMAN,

Spokane, Wash.

FEATHERSTONE & FOX,

Wallace, Ida.

Attorneys for Plaintiff.

MYRON A. FOLSOM,

JOHN P. GRAY.

J. E. GYDE,

Attorneys for Defendants. [1375]

Upon the reading of the foregoing stipulation and sufficient cause appearing therefor, I, William W. Woods, Judge of the District Court of the First Judicial District of the State of Idaho, in and for

the County of Shoshone, hereby certify that the foregoing transcript contains a full, true and correct copy and transcript of the original files and records in said action as the same now remain on file and of record in the office of the Clerk of said Court, and do further certify that the same contains every matter and thing whatsoever (except exhibits which are separately certified) used or considered by this Court upon the hearing had in said cause upon the motion of the plaintiff for a new trial herein, and it is further ordered that the said transcript have the full force and effect of a bill of exceptions duly settled and allowed and shall be deemed adequate to present for review any ruling appearing therein; together also with the question of the insufficiency of the evidence to justify or sustain the findings of fact and conclusions of law and judgment thereon.

Dated at Wallace, Idaho, this 21st day of February, A. D. 1913.

WILLIAM W. WOODS,

District Judge. [1376]

State of Idaho,

County of Shoshone,—ss.

I, John P. Sheehy, Clerk of the District Court of the First Judicial District of the State of Idaho, in and for the County of Shoshone, do hereby certify that pages 1 to 66, inclusive, of the foregoing Transcript include the papers prepared by me by virtue of a Praecipe filed therefor by appellant within five days after the filing of the Notice of Appeal; that pages 67 to 1399, inclusive, is the Transcript of Evi-

dence and Reporters' Transcript, including stipulation and settlement thereof by the District Judge who tried the cause; that the foregoing record is compiled and bound under my direction as a true and correct transcript of the proceedings therein contained.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Court this 21st day of February, A. D. 1913.

[Seal]

JOHN P. SHEEHY,
Clerk District Court. [1377]

*In the United States District Court, Northern Division,
for the District of Idaho.*

STEWART MINING COMPANY,

Plaintiff,

vs.

JONATHAN BOURNE, Junior, et al.,

Defendant.

STEWART MINING COMPANY,

Plaintiff,

vs.

BUNKER HILL AND SULLIVAN MINING
AND CONCENTRATING COMPANY,

Defendant.

STEWART MINING COMPANY,

Plaintiff,

vs.

SIERRA NEVADA MINING COMPANY,

Defendant.

Stipulation as to Record on Appeal.

WHEREAS, the plaintiff in the foregoing cases is about to appeal the said cases from the decision of this Court rendered January 16, 1914, to the Circuit Court of Appeals for the Ninth Circuit, and there is now pending in the Supreme Court of the United States, an appeal from the Supreme Court of the State of Idaho, involving the same questions presented in the appeal about to be made, and the record lodged in the Supreme Court of the United States is the same record as is now on file in these cases in this Court; [1378]

NOW, THEREFORE, it is hereby stipulated by and between the parties hereto, by and between their respective attorneys, that under and in accordance with rule seventy-five of the rules of Practice and Equity, that for the convenience of all parties this Court shall direct that the entire record as presented to it shall be ordered up to the Circuit Court of Appeals for the Ninth Circuit.

Dated this 17th day of March, 1914.

GUNN, RASCH & HALL,

CULLEN, LEE & MATTHEWS,

Attorneys for Plaintiff.

CURTIS H. LINDLEY,

M. A. FOLSOM,

Attorneys for Defendant.

[Endorsed]: Filed March 19, 1914. A. L. Richardson, Clerk. [1379]

*In the District Court of the United States for the
District of Idaho, Northern Division.*

STEWART MINING COMPANY, a Corporation,
Plaintiff,

vs.

JONATHAN BOURNE, Jr., and LILLIAN E.
BOURNE, His Wife,

Defendant.

Assignments of Error.

Now comes the Stewart Mining Company, plaintiff in the above-entitled cause and says that the United States District Court for the District of Idaho erred in its decision and decree in said cause, as appears from the record therein and that the errors committed are as follows, to wit:

1. That said Court erred in holding and deciding that the edge or termination of the vein along the Osborn fault beneath the surface of the Senator Stewart Fraction claim is not a top or apex within the meaning of those terms as used in section 2322 of the Revised Statutes of the United States.

2. The said Court erred in holding and deciding that the top or apex of said vein is not so situated with reference to the Senator Stewart Fraction claim as that plaintiff has an extralateral right to that section of the vein beneath the Ontario claim between the vertical planes of the end lines of the Senator Stewart Fraction claim extended. [1380]

3. The said Court erred in holding and deciding that the course pursued in following on the vein

from the edge or termination thereof along said Osborn fault beneath the surface of the Senator Stewart Fraction claim along vertical planes parallel with the vertical plane of the end line of said claim extended to the part of the vein beneath the Ontario claim is not a downward course within the meaning of the words "downward course" and "course downward" as the same appear in section 2322 of the Revised Statutes of the United States.

4. The said Court erred in holding and deciding that the question whether the termination or edge of the vein along said Osborn fault is a top or apex thereof should be determined without reference to the situation of the Senator Stewart Fraction claim, or the boundary lines thereof.

5. The said Court erred in holding and deciding that the plaintiff has no extralateral right to that section of the vein beneath the surface of the Ontario quartz lode mining claim within the vertical planes of the end lines of the Senator Stewart Fraction claim extended.

6. The said Court erred in holding and deciding that the plaintiff is not the owner of that section of the vein beneath the Ontario claim between the vertical planes of the end lines of the Senator Stewart Fraction claim extended.

7. The said Court erred in rendering a decree dismissing the bill of complaint in said cause.

WHEREFORE, the plaintiff, the Stewart Mining Company, prays that for the errors aforesaid and other errors appearing in the record in said cause

to its prejudice that the said decree may be reversed.
[1381]

GUNN, RASCH & HALL,
CULLEN, LEE & MATTHEWS,
Solicitors for Plaintiff, Stewart Mining Company.

Due service acknowledged this 17th day of March,
1914.

M. A. FOLSOM,
C. H. LINDLEY,
Attorneys for Defts.

[Endorsed]: Filed March 19, 1914. A. L. Richardson, Clerk. [1382]

*In the District Court of the United States for the
District of Idaho, Northern Division.*

STEWART MINING COMPANY, a Corporation,
Plaintiff,

vs.

JONATHAN BOURNE, Jr., and LILLIAN E.
BOURNE, His Wife,

Defendants.

Petition for Order Allowing Appeal.

Comes now the above-named plaintiff, the Stewart Mining Company, and conceiving itself to be aggrieved by the decree made, rendered and entered in the above-entitled cause on the 31st day of January, 1914, wherein and whereby it was ordered, adjudged and decreed that the bill of complaint therein be dismissed, hereby petitions for the allowance of an appeal from said decree to the United States Circuit

Court of Appeals pursuant to the laws of the United States in that behalf made and provided; and also that an order be made fixing the amount of security which the said plaintiff should give and furnish upon said appeal.

And your petitioner will forever pray, etc.

GUNN, RASCH & HALL,

CULLEN, LEE & MATTHEWS,

Solicitors for Plaintiff, Stewart Mining Company.

Due service acknowledged this 17th day of March, 1914.

M. A. FOLSOM,

C. H. LINDLEY,

Attys. for Defts.

[Endorsed]: Filed March 19, 1914. A. L. Richardson, Clerk. [1383]

*In the District Court of the United States for the
District of Idaho, Northern Division.*

STEWART MINING COMPANY, a Corporation,
Plaintiff,

vs.

JONATHAN BOURNE, Jr., and LILLIAN E.
BOURNE, His Wife,

Defendants.

Order Allowing Appeal, etc.

The petition of the Stewart Mining Company, plaintiff in the above-entitled cause, for an order allowing an appeal from the decree rendered and entered in said cause, on the 31st day of January, 1914,

together with assignments of error having been filed herein;

IT IS ORDERED that an appeal be and the same is hereby allowed to the United States Circuit Court of Appeals for the Ninth Circuit from the decree made and entered in said cause; and that the amount of bond upon said appeal be and the same is hereby fixed at the sum of \$500.00; and that a certified transcript of the records and proceedings herein be forthwith transmitted to the said United States Circuit Court of Appeals.

Dated this 19th day of March, 1914.

FRANK S. DIETRICH,
Judge.

[Endorsed]: Filed, March 19, 1914. A. L. Richardson, Clerk. [1384]

*In the District Court of the United States for the
District of Idaho, Northern Division.*

STEWART MINING COMPANY, a Corporation,
Plaintiff,

vs.

JONATHAN BOURNE, Jr., and LILLIAN E.
BOURNE, His Wife,

Defendants.

Bond on Appeal.

KNOW ALL MEN BY THESE PRESENTS:
That we, Stewart Mining Company, as principal,
and United States Fidelity & Guaranty Co., as
surety, are held and firmly bound unto Jonathan

Bourne, Jr., and Lillian E. Bourne in the full and just sum of \$500.00 to be paid to the said Jonathan Bourne, Jr., and Lillian E. Bourne, their heirs, personal representatives and assigns, for which payment well and truly to be made we bind ourselves and our successors and assigns jointly and severally, firmly by these presents.

Dated this 19th day of March, 1914.

WHEREAS, the Stewart Mining Company, plaintiff in the above-entitled cause, has taken an appeal to the Circuit Court of Appeals for the Ninth Circuit to reverse the decree rendered and entered in said cause by the above-entitled court, dismissing the complaint therein and for costs.

NOW, THEREFORE, the condition of this obligation is such that if the said Stewart Mining Company shall prosecute said appeal to effect, and answer all damage and costs, if it shall [1385] fail to make good its plea, then this obligation shall be void, otherwise to remain in full force and effect.

STEWART MINING COMPANY.

By W. E. CULLEN,

Its Attorney.

UNITED STATES FIDELITY & GUAR-
ANTY COMPANY.

[Seal]

By R. L. WEBSTER,

Its Attorney in Fact.

The foregoing bond is approved this 19th day of March, 1914.

FRANK S. DIETRICH,
United States District Judge.

[Endorsed]: Filed, March 19, 1914. A. L. Richardson, Clerk. [1386]

*In the District Court of the United States for the
District of Idaho, Northern Division.*

STEWART MINING COMPANY, a Corporation,
Plaintiff and Appellant,
vs.

JONATHAN BOURNE, Jr., and LILLIAN E.
BOURNE, His Wife,
Defendants and Respondents.

**Order [Directing That All Testimony Should be
Incorporated in Record on Appeal, and Direct-
ing Certification and Transmission of All Ex-
hibits.]**

Appellant and respondent having expressed the desire and having requested that the transcript of the record in said cause on the appeal shall include all of the testimony and that the same be reproduced in such transcript in the exact words of the witnesses, and it appearing that all of the testimony has a bearing upon and relates to the questions presented by the errors assigned and is necessary to a proper consideration and determination of such questions, and it further appearing that because of the large number of exhibits and the references to same in the testimony and because of the nature of the testimony generally, it can be better appreciated and understood by a reproduction of same in the transcript in the exact words of the witnesses.

The Clerk of this court is ORDERED and DIRECTED in the preparation of the transcript of the record on the appeal to include and incorporate therein all of the testimony and that the same be reproduced in the exact words of the witnesses and also include in said transcript a copy of this order. [1387]

It is further ordered that the clerk of this court certify and transmit to the clerk of the United States Circuit Court of Appeals at San Francisco with said transcript of the record all of the exhibits introduced in evidence in said cause.

Dated this 19th day of March, 1914.

FRANK S. DIETRICH,
United States District Judge for the District of
Idaho.

[Endorsed]: Filed, March 19, 1914. A. L. Richardson, Clerk. [1388]

*In the District Court of the United States for the
District of Idaho, Northern Division.*

STEWART MINING COMPANY, a Corporation,
Plaintiff and Appellant,
vs.

JONATHAN BOURNE, Jr., and LILLIAN E.
BOURNE, His Wife,
Defendants and Respondents.

Praeipie [for Transcript of Record on Appeal].

To the Clerk of the Above-entitled Court:

You will please prepare a transcript of the record in this cause to be filed in the office of the clerk of

the United States Circuit Court of Appeals for the Ninth Circuit at San Francisco, pursuant to the order allowing the appeal in said cause, said transcript to consist of a copy of all of the testimony in said cause in the exact words of the witnesses, a copy of the pleadings and decree and a copy of each stipulation entered into between the parties and filed in said cause, and of all other papers, records and proceedings in said cause, including the assignments of error, petition for an order allowing the appeal, order allowing appeal, bond on appeal, stipulation requesting entire record be sent up, order directing the inclusion of all of the testimony in the transcript in the exact words of the witnesses—the same to be a complete transcript of the entire record in said cause as the same appears in your office. [1389]

You will also please attach to and transmit with said record in said cause the original citation issued therein.

You will also please identify and certify and transmit to said clerk of the United States Circuit Court of Appeals each and all of the exhibits in said cause.

Dated this 19th day of March, 1914.

GUNN, RASCH & HALL,

CULLEN, LEE & MATTHEWS,

Solicitors for Appellant.

[Endorsed]: Filed, March 19, 1914. A. L. Richardson, Clerk. [1390]

Citation [on Appeal (Original)].

UNITED STATES OF AMERICA,—ss.

The President of the United States to Jonathan Bourne, Jr., and Lillian E. Borne, Greeting:

You are hereby cited and admonished to be and appear at the United States Circuit Court of Appeals for the Ninth Circuit, to be held at the City of San Francisco, State of California, within thirty days from the date of this citation, pursuant to an appeal filed in the clerk's office of the United States District Court for the District of Idaho at Boise City, Idaho, in that certain suit numbered 558 in which Stewart Mining Company, a corporation, is plaintiff and appellant, and you are defendants and respondents, to show cause, if any there be, why the decree rendered against said Stewart Mining Company, plaintiff and appellant, as in the said order allowing the said appeal mentioned, should not be corrected, and why speedy justice should not be done to the parties in that behalf.

WITNESS the Honorable Frank S. Dietrich, United States District Judge for the District of Idaho, this 19th day of March, 1914.

FRANK S. DIETRICH,
United States District Judge for the District of Idaho.

[Seal] Attest: A. L. RICHARDSON,
Clerk of United States District Court for the District of Idaho.

Jonathan Bourne, Jr., and Lillian E. Bourne. 1043

Service of foregoing citation admitted and receipt of copy acknowledged this 21st day of March, 1914.

CURTIS H. LINDLEY,

MYRON A. FOLSOM,

A. W.

Solicitors for Defendants and Respondents. [1391]

[Endorsed]: No. 558. In the District Court of the United States for the District of Idaho, Northern Division. Stewart Mining Company, a Corporation, Plaintiff, vs. Jonathan Bourne, Jr., and Lillian E. Bourne, His Wife, Defendants. Citation. Filed March 23, 1914. A. L. Richardson, Clerk. [1392]

[Certificate of Clerk U. S. District Court Relative to Certification and Transmission of Exhibits.]

In the District Court of the United States for the District of Idaho, Northern Division.

STEWART MINING COMPANY, a Corporation,
Plaintiff,

vs.

JONATHAN BOURNE, Jr., and LILLIAN E.
BOURNE, His Wife,

Defendants.

I, A. L. Richardson, Clerk of the above-entitled court, do hereby certify that I have identified, certified and transmitted to the Clerk of the United States Circuit Court of Appeals for this Circuit at San Francisco, the exhibits in the above-entitled cause, as having been introduced in evidence in said cause, to wit, maps and models.

In witness whereof I have hereunto set my hand and affixed the seal of said court this 23d day of February, 1914.

[Seal] A. L. RICHARDSON,
Clerk of the United States District Court for the
District of Idaho. [1393]

**[Certificate of Clerk U. S. District Court to
Transcript of Record.]**

*In the District Court of the United States for the
District of Idaho, Northern Division.*

STEWART MINING COMPANY, a Corporation,
Plaintiff,

vs.

JONATHAN BOURNE, Jr., and LILLIAN E.
BOURNE, His Wife,

Defendants.

I, A. L. Richardson, Clerk of the above-entitled court, do hereby certify that the foregoing from page 1 to page 1394, inclusive, is a complete and true transcript of the records and proceedings in the above-entitled cause with the exception of the exhibits introduced in evidence and referred to in said transcript, as appears from the papers and records in said cause on file in my office.

I further certify that pursuant to the order of the Judge of the above-entitled court the exhibits in said cause, consisting of models, maps and other things are identified and certified by me separately for transmission with this transcript to the clerk of

Jonathan Bourne, Jr., and Lillian E. Bourne. 1045
the United States Circuit Court of Appeals at San
Francisco.

I also further certify that there is attached to said
transcript the original citation issued in said cause.

WITNESS my hand and the seal of said court this
25th day of March, 1914.

[Seal] A. L. RICHARDSON,
Clerk of the United States District Court for the
District of Idaho. [1394]

[Endorsed]: No. 2390. United States Circuit
Court of Appeals for the Ninth Circuit. Stewart
Mining Company, a Corporation, Appellant, vs.
Jonathan Bourne, Jr., and Lillian E. Bourne, His
Wife, Appellees. Transcript of Record. Upon Ap-
peal from the United States District Court for the
District of Idaho, Northern Division.

Received and filed March 30, 1914.

FRANK D. MONCKTON,
Clerk of the United States Circuit Court of Appeals
for the Ninth Circuit.

By Meredith Sawyer,
Deputy Clerk.

United States
Circuit Court of Appeals
For the Ninth Circuit.

STEWART MINING COMPANY,
Appellant,
vs.
JONATHAN BOURNE, JR., et al.,
Appellees.

BRIEF OF APPELLANT.

STATEMENT OF FACTS.

This is a suit to quiet title. The plaintiff and appellant alleges ownership and possession of the Senator Stewart Fraction Quartz Lode Mining Claim; that within said claim is a vein, the top or apex of which extends from the easterly end line of the claim in a westerly direction through said claim for a distance of approximately 705 feet to and across the southerly side line of the claim; and

that such vein has a downward course from the apex and descends into the earth southerly beneath the Ontario Quartz Lode Mining Claim, the property of the defendants and appellees. The appellant asserts an extralateral right to the section of said vein beneath the Ontario claim within planes drawn downward through the end lines of the Senator Stewart Fraction claim extended. (Record p. 1.) The boundaries and situation of the claims referred to are shown on the maps in evidence in the case.

The answer (Record p. 19) denies that any vein having its apex within the Stewart Fraction claim extends beneath the Ontario claim. The answer further pleads a judgment in a case in which this appellant was plaintiff and the Ontario Mining Company, et al., were defendants, as a bar to this suit. The action in which the judgment mentioned was rendered was against the lessee of the Ontario claim. As no evidence was introduced in support of the plea so made, the case was heard and decided in the lower court upon the issues presented by the denials of the allegations of the complaint. (Record p. 38.)

The answer also alleges an exception in the patent to the Stewart Fraction claim of that part of the claim in conflict with the Quaker Quartz Lode Mining Claim. The area excepted is shown by the maps in evidence and it is admitted that the exception is not material to any issue in this case.

It was stipulated that the appellant is the owner and in possession of the Stewart Fraction claim and the defendants are the owners and in possession of the Ontario claim. It was further stipulated that United States patents have issued for both claims and that the boundaries and situation of the claims are correctly shown upon the maps introduced in evidence. It was also stipulated that the vein in controversy passes beneath the Ontario claim. (Record p. 31.)

The case was heard and decided by the lower court on the evidence in the case of the Stewart Mining Company v. the Ontario Mining Company, et al., 132 Pac. 787, and on the facts agreed to by the stipulation above referred to.

The defendants and appellees are not asserting any apex right to the section of the vein in controversy. They make no claim to the apex of the vein, but deny the extralateral right of the appellant and rely upon the *prima facie* presumption of ownership of the mineral beneath the surface of the Ontario claim.

In view of the pleadings, stipulation and admitted facts, the only question is whether the appellant has the right of lateral pursuit of the vein beneath the Ontario claim.

It is admitted that the vein in question terminates beneath the Stewart Fraction claim along what is known and referred to in the testimony as

the Osborn fault. It was conceded in the lower court that there is a downward course from the edge of the vein along the Osborn fault to the section of the vein beneath the Ontario claim.

The lower court found and decided that the termination of the vein along the Osborn fault in the Stewart Fraction claim is not a top or an apex within the meaning of the words “top” and “apex” as used in section 2322 of the Revised Statutes of the United States. Because of this finding and decision the claim of the appellant to an extralateral right to the section of the vein beneath the Ontario was denied. (Record p. 38.) The complaint was dismissed and the appeal is from the decree which was entered accordingly. (Record p. 48.)

SPECIFICATIONS OF ERROR.

1. The lower court erred in finding and deciding that the termination of the vein in the Stewart Fraction claim along the Osborn fault is not an apex.
2. The court erred in deciding that the appellant has no extralateral right to, and is not the owner of, the section of the vein beneath the Ontario claim.
3. The court erred in dismissing the complaint.

ARGUMENT AND AUTHORITIES.

Senator Stewart Fraction Claim Properly Located With Reference to the Discovery Vein.

There is neither allegation nor proof with reference to the discovery vein in the Stewart Fraction claim, but by virtue of the patent there is a presumption that a discovery was made and that the claim was properly located with reference to the discovery vein.

Work Mining & Milling Co. v. Jack Pot Mining Co., 194 Fed. 620;

Enterprise Mining Co. v. Rico-Aspen Mining Co., 167 U. S. 115;

Del Monte M. & M. Co. v. Last Chance M. & M. Co., 171 U. S. 55.

Mr. Lindley disagrees with the decision of the Circuit Court of Appeals for the Eighth Circuit in the case first cited above, in which it was decided that after patent a presumption obtains that the claim was properly located with reference to the discovery vein, and expresses the opinion that such a doctrine "will not receive the sanction of the Supreme Court of the United States." (Lindley on Mines, 3rd Ed., p. 1905.)

Mr. Lindley, in criticism of the said case, generally referred to as the Dr. Jack Pot Case, says:

"The court of appeals, in the Work-Doctor

Jack Pot case, quotes in support of its rulings an excerpt from the opinion of the supreme court of the United States in *Enterprise Mining Company v. Rico-Aspen Mining Company*:—
‘The presumption, of course, would be that the vein ran lengthwise and not crosswise of the claim as located.’

“In this case a patent had been granted for a mining claim lying parallel with the line of a discovery tunnel. It was contended that the tunnel locator should have adversed the patent application, in order to have secured the right to veins discovered in the tunnel which crossed the patented claim, the inception of the tunnel right being prior in time. In using the above-quoted language the court undoubtedly referred to a natural rather than a legal presumption. In any event, the case is not authority for the rule that such a presumption, if a legal one, is conclusive.”

As a matter of fact, the court in the opinion in the *Dr. Jack Pot* case did not hold that the presumption that the discovery vein extends lengthwise of the claim is a conclusive presumption. The court said:

“As already suggested, the fact that a discovery vein existed in the discovery cut must, for the purposes of this case, be conclusively

presumed, and *prima facie* at least the end lines of the claim as fixed in the patent are the true end lines, and, in the absence of evidence showing that the discovery vein instead of running lengthwise of the claim in fact crosses opposite side lines as fixed by the patent must prevail.” (194 Fed. 629.)

When the decisions of the Supreme Court of the United States as to the effect and operation of a patent for a mining claim are considered in view of the provision of section 2320 of the Revised Statutes of the United States, which declares: “No claim shall extend more than three hundred feet on each side of the middle of the vein at the surface,” there can be no doubt as to the correctness of the decision in the Dr. Jack Pot case, and the holding in that case already has the approval of the Supreme Court of the United States as we shall show.

A patent to a mining claim is conclusive against a collateral attack of every matter which the land department is required to determine before the patent is issued.

St. Louis Smelting, etc., Co. v. Kemp, 104 U. S. 636;

Steel v. St. Louis Smelting, etc., Co., 106 U. S. 447;

Lindley on Mines, 3rd ed. pp. 1889, et seq.

Creede & C. C. M. & M. Co. v. Uinta Min. Co.,
196 U. S. 337;

Lawson v. U. S. Mining Co., 207 U. S. 1.

In the opinion in the case of Creede etc. Co. v. Uinta etc. Min. Co., cited above, the court, after referring to the laws of Colorado relating to the location of mining claims, said:

“The issue of a patent for a lode claim in Colorado is therefore not only a conclusive adjudication of the fact of the discovery of the mineral vein, but also of compliance with these several provisions of its statutes.”

As the land department of the government is without jurisdiction to issue a patent for “more than three hundred feet on each side of the middle of the vein at the surface” it necessarily follows that there must be some inquiry made with reference to the course of the discovery vein, and where a patent is issued for a tract of land 600 feet or less in width and more than 600 feet in length, there is at least a *prima facie* presumption that the land department has not exceeded its jurisdiction and that the claim was properly located with reference to the discovery vein. So that, the statement by Mr. Justice Brewer in the opinion in the case of Enterprise Mining Company v. Rico-Aspen Mining Company, 167 U. S. 115, that “The presumption, of course, would be

that the vein ran lengthwise and not crosswise of the claim as located," has reference to a legal presumption and is strictly correct in view of the limitation placed upon the jurisdiction and power of the land department by section 2320 of the Revised Statutes and in view of the presumption attaching to a patent which is in the nature of a judgment *in rem*. Furthermore, Mr. Justice Brewer in the Del Monte case, 171 U. S. p. 1, says:

"Our conclusions may be summed up in these propositions: First, *the location as made on the surface by the locator determines the extent of rights below the surface*. Second, *the end lines, as he marks them on the surface, with the single exception hereinafter noticed, place the limits beyond which he may not go in the appropriation of any vein or veins along their course or strike*. Third, every vein 'the top or apex of which lies inside of such surface lines extended downward vertically' becomes his by virtue of his location, and he may pursue it to any depth beyond his vertical side lines, although in so doing he enters beneath the surface of some other proprietor. Fourth, *the only exception to the rule that the end lines of the location as the locator places them establish the limits beyond which he may not go in the appropriation of a vein on its course or strike is*

where it is developed that in fact the location has been placed, not along, but across, the course of the vein. In such case the law declares that those which the locator called his side lines are his end lines, and those which he called end lines are in fact side lines, and this upon the proposition that it was the intent of Congress to give to the locator only so many feet of the length of the vein, that length to be bounded by the lines which the locator has established of his location.” (Italics ours.)

In the opinion in the case of St. Louis Smelting etc. Co. v. Kemp, 104 U. S. 336, Mr. Justice Field said:

“The general doctrine declared may be stated in a different form, thus: a patent, in a court of law, is conclusive as to all matters properly determinable by the Land Department, when its action is within the scope of its authority; that is, when it has jurisdiction under the law to convey the land. In that court the patent is unassailable for mere errors of judgment. Indeed, the doctrine as to the regularity and validity of its acts, where it has jurisdiction, goes so far that if in any circumstances under existing law a patent would be held valid, it will be presumed that such circumstances existed.”

As the land department was without authority to issue a patent for a greater area than 300 feet on each side of the center of the discovery vein, and as the claim is more than 600 feet in length, it follows, in view of the rule announced by Mr. Justice Field, in the foregoing quotation, that a presumption exists that the discovery vein extends lengthwise of the claim.

Mr. Lindley further says, in criticism of the Dr. Jack Pot case:—

“The decision of the circuit court of appeals in the case under discussion appears to us to be out of harmony with the reasoning of the same court in the case of Uinta Tunnel Mining and Transportation Co. v. Creede & Cripple Creek Mining & Milling Co., with reference to adjudications of the land department which are *res inter alios acta*.” (Lindley on Mines, Vol. 3, 3rd ed., p. 1907.)

In the case of Uinta etc. Mining Co. v. Creede etc. Mining Co., it was decided that the patent, while conclusive that a discovery was made, does not furnish evidence of the date of the discovery except that it was made before patent issued. The decision was affirmed by the Supreme Court of the United States (196 U. S. 337.) In the Dr. Jack Pot case the question was with reference to the presumption that the discovery vein extends lengthwise of

the claim. The court recognizes that the patent is conclusive that a discovery was made, and said:

“* * * and prima facie at least the end lines of the claim as fixed in the patent are the true end lines, and, in the absence of evidence showing that the discovery vein instead of running lengthwise of the claim in fact crosses opposite side lines of the claim, the end lines as fixed by the patent must prevail.” (194 Fed. 629.)

We are unable to see any want of harmony between the decision in the Uinta case and the decision in the Dr. Jack Pot case.

In discussing the Dr. Jack Pot case Mr. Lindley further takes issue with the proposition that a patent for a mining claim conclusively determines that the provisions of the law of the state in which the claim is situated, providing the conditions upon which title may be acquired, have been complied with. A sufficient answer to Mr. Lindley's views in this regard is furnished by the above quotation from the opinion of the Supreme Court of the United States in the case of Creede etc. Mining Co. v. Uinta etc. Mining Co., 196 U. S. 337.

Mr. Lindley's entire criticism of the Dr. Jack Pot case is founded on the view that “a lode patent does not raise any presumption in justification of the invasion of another's territory, as to the posi-

tion of the apex or the course of the vein, but these facts, when challenged by the proprietor of the invaded claim, should be proved by the apex claimant, regardless of presumptions flowing from the patent.” (Lindley on Mines, 3rd ed., p. 1900.)

If this view is correct, how does the learned author distinguish between the presumption that a discovery was made and the presumption that the discovery was upon a vein extending lengthwise of the claim? It would seem to us that for the same reason that a patent to a mining claim is conclusive against third parties that a discovery was made, it is also conclusive that the discovery vein extends lengthwise of the claim, until, as said by Mr. Justice Brewer, development discloses otherwise, as both the fact of discovery and the situation of the discovery vein must be found and determined by the land department before a patent issues.

As a matter of fact, the rule that before one is permitted to invade the mining claim of another he must prove his right to do so, is but a rule of evidence as shown by the discussion in Mr. Lindley’s work on mines, 3rd ed., pp. 2163, et seq. It is the same rule of evidence which obtains in all actions involving title to property. When a person asserts a claim to mineral beneath the surface of another’s mining claim, the burden is upon him to show title. In order to do so he must show ownership of a mining claim within which the apex of the vein is so

situated with reference to the surface boundaries as to entitle him to the right of lateral pursuit of the vein beneath the surface of the other claim. If he has obtained a patent it is not only presumed that there is an apex of a vein within his claim, but it is presumed that the land department in defining the area of the surface granted, determined the situation of the discovery vein and that the lines of the claim are correctly placed with reference thereto. As the patent operates as a grant of all veins having their tops or apexes within the surface boundaries of his claim, when he shows that the vein he is pursuing on its downward course beneath the surface of another's claim has its apex within his claim, and that in the lateral pursuit of the vein he is within the vertical planes of the end lines of his claim extended, he has shown a right and satisfied the requirement with reference to proof. Presumptively, at least, the vein in question was granted by the government, while there is no presumption whatever of a grant of such vein to the owner of the claim beneath which the section of the vein in controversy exists.

In view of Mr. Lindley's discussion of patents to mining claims (p. 1889, et seq.) and in view of his discussion of the burden of proof in cases of underground trespasses (p. 216, et seq.), we are wholly unable to conceive of the course of reasoning which leads him to the criticism made of the Dr.

Jack Pot case.

There is no denial in the answer that the end lines of the claim are as described in the patent. Furthermore, by the stipulation filed, it is admitted that the boundaries of the claim are correctly shown upon the maps constituting exhibits in the case. The only issue presented to, and considered by, the lower court was with reference to the apex of the vein in controversy. Under the circumstances we submit that the situation of the discovery vein is not open to inquiry, and, in any event, in view of the presumptions flowing from the patent, the claim must be considered as having been properly located with reference to the discovery vein.

The Lower Court Erred in Deciding that the Terminal Edge of the Vein Along the Osborn Fault Is Not an Apex, and in Denying to Appellant an Extralateral Right to the Part of the Vein Beneath the Ontario Claim in Controversy.

Construction of Section 2322 of Revised Statutes of United States.

Section 2322 of the Revised Statutes of the United States provides as follows:

“The locators of all mining locations heretofore made or which shall hereafter be made, on any mineral vein, lode, or ledge, situated on

the public domain, their heirs and assigns, where no adverse claim exists on the tenth day of May, eighteen hundred and seventy-two, so long as they comply with the laws of the United States, and with state, territorial, and local regulations not in conflict with the laws of the United States governing their possessory title, shall have the exclusive right of possession and enjoyment of all the surface included within the lines of their locations, and of all veins, lodes, and ledges throughout their entire depth, *the top or apex* of which lies inside of such surface-lines extended downward vertically, although such veins, lodes, or ledges may so far depart from a perpendicular in their *course downward* as to extend outside the vertical side-lines of such surface locations. But their right of possession to such outside parts of such veins or ledges shall be confined to such portions thereof as lie between vertical planes drawn downward as above described, through the end-lines of their locations, so continued in their own direction that such planes will intersect such exterior parts of such veins or ledges. And nothing in this section shall authorize the locator or possessor of a vein or lode which extends in its *downward course* beyond the vertical lines of his claim to enter upon the surface of a claim owned or possessed by another.”

(Italics ours.)

In the opinion in the case of *Lawson v. United States Mining Co.*, 207 U. S. p. 1, the court said:

“Discovery is the all-important fact upon which title to mines depends. Lindley, in his work on Mines, 2d ed. vol. 1, sec. 335, says:

“‘Discovery in all ages and all countries has been regarded as conferring rights or claims to reward. Gamboa, who represented the general thought of his age on this subject, was of the opinion that the discoverer of mines was even more worthy of reward than the inventor of a useful art. Hence, in the mining laws of all civilized countries, the great consideration for granting mines to individuals is discovery. ‘Rewards so bestowed.’ says Gamboa, ‘besides being a proper return for the labor and anxiety of the discoverers, have the further effect of stimulating others to search for veins and mines, on which the general prosperity of the state depends.’

“The two thoughts here presented are reward for the time and labor spent in making the discovery, thus adding to the general wealth, and incentive to others to prosecute searches for veins and mines. To take from the discoverer a portion of that which he has discovered and

give it to one who may have been led to make an adjoining location by a knowledge of the discovery, and without any previous searching for mineral, is manifest injustice.”

In the opinion in the Del Monte case, Mr. Justice Brewer said:

“It is undoubtedly true that the primary thought of the statute is the disposal of the mines and minerals, and in the interpretation of the statute this primary purpose must be recognized and given effect. Hence, whenever a party has acquired the title to ground within whose surface area is the apex of a vein with a few or many feet along its course, or strike, a right to follow that vein on its dip for the same length ought to be awarded to him if it can be done, and only if it can be done, under any fair and natural construction of the language of the statute.” (171 U. S. 66.)

In considering section 2322 of the Revised Statutes of the U. S. as applied to the facts in this case, two questions are presented, viz:

1. What is meant by the words “course downward” and “downward course?”
2. What is meant by the terms “top” and “apex?”

Downward Course.

In the case of Stewart Mining Company v. Ontario Mining Company, et al., 132 Pac. 787, the same question of extralateral right was involved as is presented here. In that case the plaintiff was seeking injunctive relief against the Ontario Mining Company as lessee of the Ontario claim. The court in the opinion said:

“Some confusion has obtruded into this case through an attempt to extend the language of the courts in Bunker Hill & Sullivan M. & C. Co. v. Empire State, etc., Co., (C. C.), 134 Fed. 268, and Last Chance Mining Co. v. Bunker Hill & Sullivan M. & C. Co., 131 Fed. 579, 66 C. C. A. 299, to an unwarranted length. The suggestion contained in those cases that it makes no difference whether the vein be followed more on the dip than the strike provided it be ‘between vertical planes drawn downward through its adjudicated end lines,’ is not the vital holding or ruling of the court in either case, and, as we understand the decisions of the Supreme Court, does not find unqualified support in any of the decisions of that court. The Supreme Court always qualifies its holdings in this respect by *the condition of the statute* that *the course between those vertical planes must be downward*. So far as we are aware, the au-

thorities are quite uniform in holding that the extralateral right awarded by the statute (section 2322) must in all cases be pursued more upon the dip than the strike of the vein—more upon the *downward* than upon the *onward* course of the vein. To pursue a vein in the direction of its strike at an angle of less than 45 degrees to the course thereof would clearly not be following the vein on its ‘downward course,’ as authorized by the statute.”

In the case of Bunker Hill & Sullivan Mining Co. v. Empire State etc., Mining Co., 108 Fed. 189, District Judge Beattie considered the extralateral right incident or attaching to the Stemwinder mining claim. A map, showing the situation of the Stemwinder with reference to the adjacent claims and showing the course of the apex of the vein involved, is presented in 131 Federal Reporter at page 592. An examination of this map will disclose that the vein was in such form and so situated that in following the same from the apex in the Stemwinder within the vertical planes of the end lines of said claim the course pursued was more along the strike than on the dip after reaching a certain depth. In the opinion District Judge Beattie said:

“Defendants claim that the planes of the Stemwinder’s end lines run more along the course than upon the dip of the ledge, and refer

to the fact that this court once instructed a jury that this could not be done. Such instruction was given in the hurry of a jury trial, perhaps without sufficient reflection, and the court may also have been somewhat biased by the still lingering view always entertained by the miner that ledges were to be followed upon their dip; but I think the instruction was not in accord with the rule of the Supreme Court, which is simply that ledges are to be followed between end line planes without any limitation prescribed as to dip or course. Following the logic of that rule, I have not examined the evidence bearing upon the relation of the Stemwinder's end lines to the course or dip of the ledge."

In a later case between the same parties, 134 Fed. 268, District Judge Beattie again, in considering the extralateral right of the Stemwinder claim, said:

"Whether the evidence sustains defendant's contention that complainant, in following the ledge between the planes of its end lines, does so more upon its strike than upon its dip, I have not determined. There is nothing in the mining act that can possibly justify the conclusion that this extralateral right must be limited to 45 degrees, or to any other particular variation, from the true dip. All that this court can

do is to follow the rule, as it understands it, adopted by the Supreme Court. That court holds without any qualification that the extralateral right is bounded by the prolonged planes of the legal end lines. I do not desire to add to what I have said in other cases in justification of my adoption of this rule.”

In the case of the Last Chance Mining Company v. Bunker Hill & Sullivan Mining Company, 131 Fed. 579, this court said:

“It is further and strenuously urged on behalf of the appellants that the appellee, in following the vein underground between vertical planes drawn downward through its adjudicated end lines, does so more upon its strike than upon its dip; and this, it is insisted, is not permissible under the law. In respect to this matter the master made no findings, holding it immaterial, as did the court below, and confining his finding in that regard to the fact that the course of the vein was downward between the end line planes fixed by him. *The extralateral right to a vein or lode out-cropping at the surface, where it exists, is fixed by the course of the vein or lode at the surface, and not by its course on a level.*” (Italics ours.)

The court then quotes extensively from the case of Mining Co. v. Tarbet, 98 U. S. 469, and the case

of Iron Silver Mining Co. v. Elgin Min. Co., 118 U. S. 166, and concludes the opinion as follows:

“While the statute requires parallelism of the end lines, and the courts have held that they may not be laid so divergent as to include more in length upon the dip of the vein than is allowed in length upon the surface, neither the statute nor any decision to which our attention has been called defines any particular angle at which the end lines shall cross the general course of the vein in order that the extralateral right given by the statute may exist. And as said by the Supreme Court in the case last cited, where more than one vein appexes within the surface lines, it would be a physical impossibility for the end lines to be drawn at a right angle to the courses of all such veins. *And that the extralateral right conferred by the statute may and does exist without regard to the angle at which the end lines cross the general course of the vein has been held both by the Supreme Court and by this court.* Last Chance Min. Co. v. Tyler Min. Co., 157 U. S. 683, 15 Sup. Ct. 733, 39 L. Ed. 859; Empire State-Idaho M. & D. Co. v. Bunker Hill & Sullivan M. Co., 114 Fed. 417, 52 C. C. A. 219, in which last-named case this court awarded the appellant Empire State-Idaho Mining & Develop-

ment Company the right to follow the vein outcropping within the surface boundaries of its San Carlos location between planes drawn downward through its end lines at almost, if not quite, as much an angle to the general course of the outcrop of the vein within its surface boundaries as is the angle at which the appellee herein was permitted by the court below to pursue the segment of the vein here in question.” (Italics ours.)

In view of the contentions made in the cases decided by District Judge Beattie and by this Court, and in view of the plain language used in the opinions in those cases quoted above, there is no warrant whatever for the following statement by the Supreme Court of Idaho in its opinion, to-wit:

“The suggestion contained in these cases that it makes no difference whether the vein be followed more on the dip than the strike, provided it be ‘between vertical planes drawn downward through its adjudicated end lines’ is not the vital holding or ruling of the court in either case.”

There is not a decision of the Supreme Court of the United States, so far as we are advised, holding that the words “downward course” have reference to a course more upon the dip than along the

strike. As a matter of fact, an application was made to the Supreme Court of the United States for a writ of certiorari in the case of Last Chance Mining Co. v. Bunker Hill & S. Co., 131 Fed. 579, and the application was denied, 200 U. S. 617. The only case to our knowledge in which it was decided that it is not permissible to follow a vein more along the strike than on the dip in the exercise of the extralateral right conferred by the Act of Congress of 1872, is the case of Duggan v. Davey, 4 Dak. 110, cited by the Idaho court in support of its holding that the termination of the vein along the Osborn fault is not an apex. The opinion in the case of Dugan v. Davey clearly discloses that the decision is founded upon the erroneous assumption that the end lines of the claim must be laid substantially at right angles to the strike of the vein.

The Supreme Court of the United States in the case of Mining Company v. Tarbet, 98 U. S. 469, cited by the Circuit Court of Appeals in the opinion in the case of the Last Chance Mining Co. v. Bunker Hill & Sullivan Mining Co., 131 Fed. 579, did decide that where a mining claim is located along the course of the apex the extralateral right attaches, notwithstanding subsequent development may disclose that the course of the apex does not correspond with the strike of the vein. The court in deciding that the claim should be located with reference to the course of the apex, in effect declared that it

is immaterial whether in following the vein downward between the vertical planes of the end lines extended the course pursued is more along the strike than on the dip. We therefore submit that the decisions of Judge Beattie and of this Court give effect to the Act of Congress as written and are in harmony with the decisions of the Supreme Court of the United States construing same.

United States District Judge Dietrich in his opinion in this case said:

“The identical issues here presented were involved in *Steward Mining Co.* against the *Ontario Mining Co.* (lessee of the Ontario claim), 132 Pac. 787, and much of the plaintiff’s oral argument was directed to combating a proposition announced by the Supreme Court of Idaho in that case, to the effect that in pursuing a vein extralaterally it cannot be followed more upon the strike than upon the dip, even though such course may in fact be downward. This view, however, is not here urged by counsel for the defendants, and it is therefore passed, with the suggestion only that it appears to be out of harmony with the settled rule of this jurisdiction. *Bunker Hill & Sullivan Mining Co. v. Empire State etc.*, 108 Fed. 189. *Bunker Hill & Sullivan Mining Co. v. Empire State etc.*, 134 Fed. 268. *Last Chance, etc. v. Bunker Hill & Sullivan Mining Co.*, 131 Fed. 579.”

Mr. Lindley quotes that part of the opinion of the Supreme Court of Idaho in which it is decided that the words “downward course” have reference to a course more on the dip than along the strike, and says:

“We know of no legal principle to support this latter deduction, that an extralateral right cannot be exercised where the angle the extralateral planes form with the line of strike of the vein is less than forty-five degrees. The adoption of an arbitrary angle beyond which such rights may not be exercised is hardly within the province of the courts.

“In a subsequent section we have pointed out that the locator may place his end-lines at an angle so long as they cross the apex of the vein.” (Lindley on Mines, 3rd ed. p. 730.)

Without further discussion we shall assume that the decision of the Supreme Court of Idaho is erroneous and that it is wholly immaterial what course is pursued with reference to the strike of the vein if the course is downward.

The words “downward course” do not require any definition. They define themselves. “Downward course,” as used in the Act of Congress, means a course which will take one from a higher to a lower elevation.

Mr. Lindley in the 3rd edition of his work on Mines, at page 727 says:

“The Act of May 10, 1872, however, gave controlling force to surface lines, through which it was contemplated extralateral bounding-planes were to be drawn. As we have heretofore observed, none of the words, ‘dips, spurs, angles, variations’ used in the former act were retained in the later legislation. The words ‘downward course’ were substituted, as, under the new system, end-lines were not required to cross the apex of the lode at any particular angle.

“The rectangular, or true dip, theory was therefore not applicable.

“The term ‘downward course,’ a more flexible term, may therefore have been advisedly used in the new law to apply to a course from a higher to a lower level in the plane of the vein following downward along the intersecting vertical end-line plane, which only in extremely rare instances would be coincident with the true dip-line.”

He further says on page 1345:

“We have heretofore discussed the meaning of ‘downward course’ used in the statute,

and reached the conclusion that it means downward from a higher to a lower level in the plane of the vein along the intersecting end-line or side-end-line plane.”

The construction of the words “downward course” by Mr. Lindley is the only reasonable construction. There is no more justification for saying that the downward course must be a certain number of degrees from the horizontal, than there is for saying that the end lines must form a certain angle with the strike of the vein.

If, then, the termination of the vein along the Osborn fault is the top or apex, within the meaning of these words as used in the Act of Congress, and in following the vein from such top or apex to the section of the vein beneath the Ontario claim along vertical planes parallel with the vertical planes of the end lines of the Stewart Fraction claim extended, one passes from a higher level to a lower level, the course is downward and the extralateral right exists.

Apex.

The apex of the vein along the Osborn fault is a subsurface apex. Such an apex will support a location and the extralateral right attaches to a vein having a subsurface apex the same as to a vein which outcrops at the surface.

Mining Co. v. Tarbet, 98 U. S. 469;

Calhoun Gold Min. Co. v. Ajax Gold Min. Co., 182 U. S. 497.

In the opinion in the last case cited the court said:

“The only condition is that the vein shall apex within the surface lines. It is not competent for us to add any other condition. Blind veins are not excepted, and we cannot except them. They are included in the description ‘all veins’ and belong to the surface location.”

There may be two or more apices to a section of a vein. This is illustrated by figure 30 on page 728 of Lindley on Mines (3rd ed.), which represents in isometric projection several locations of the Bunker Hill vein.

Mr. Lindley in the third edition of his work on Mines at page 676 says:

“The ‘top’ or ‘apex’ of a vein as a controlling factor in lode locations.—The importance of a correct definition of the terms ‘top’ or ‘apex’, or at least a proper application of their definitions to the varying geological conditions encountered in the administration of the mining laws, cannot be overestimated. The top, or apex, of the vein which is the subject of appropriation, is the prime factor in determining the

extent of the rights acquired by a lode location. This is apparent when we consider the following requirements of the law:

“(1) No lode location is valid unless it includes, to some extent at least, within vertical planes drawn through the surface boundaries, the top, or apex, of a discovered vein, at least as against a subsequent locator properly inclosing such apex within his surface boundaries.

“(2) The right to pursue the vein on its strike ceases at the point where the apex of the vein passes beyond the surface boundaries or vertical planes drawn through them;

“(3) The right to pursue the vein on its downward course out of and beyond a vertical plane drawn through the side-line, into and underneath the lands adjoining, when this right exists to any degree, can only be exercised to the extent that the top, or apex, or the located vein is found within the surface boundaries of the location, or within vertical planes drawn through them.”

Mr. Lindley quotes the definition of apex, given by Mr. Ross E. Brown, as follows:

“The apex is all that portion of the terminal edge of the vein from which the vein has extension downward in the direction of its dip.”
(3rd ed. p. 688.)

He says, in speaking of this definition:

“The above definition, which accords with our views, involves the elements of terminal edge, and downward course therefrom.” (3rd ed. p. 688.)

If we treat the word “apex” as the terminal edge of a vein from which there is a downward course, effect is given to the intent of Congress as the entire vein can be acquired by locations embracing such terminal edge. The purpose in requiring a downward course to be followed is to prevent a locator from following the vein to an apex in another claim or to an apex beyond the boundaries of his claim. If the locator is permitted to follow from the terminal edge of his claim only on a downward course, he never can encounter another terminal edge of the same vein with a downward course therefrom.

It is claimed in behalf of the appellees that the edge or end of the vein along the Osborn fault is the side or bottom edge and not the top edge. To sustain this contention, the case of Duggan v. Davey, 4 Dak. 110, 26 N. W. 387, was cited and relied upon. This case is explained and the facts illustrated by Mr. Lindley at pages 689, et seq., of his work on Mines, third edition. In that case the Sitting Bull claim had been located along the northern slope of a hill. From the end or edge of the vein in the Sitting Bull claim the vein had a down-

ward course southerly of approximately three degrees. The court found the strike to be north and south and the dip east and an angle of seven and a half to eight degrees, as shown in figure 17 of Lindley on Mines at page 692. Mr. Lindley says:

“The dip-line shows that the outcrop in the Sitting Bull location is *substantially* on the side edge of the vein not forming an apex. To be sure, a small part of the outcrop at the westerly end of the location is apex, according to our definition, but this is not the controlling part involved in the case.” (Lindley on Mines, 3rd ed. p. 693.)

Mr. Lindley presents a diagram on page 701 of his work by which he illustrates that a part of the edge of the vein in the Sitting Bull location constituted an apex.

According to the rule recognized by Mr. Lindley for determining the question of apex, whenever the strike of the vein forms an angle with the end or edge of the vein above the strike line of less than ninety degrees, such edge or end constitutes a top or apex.

The case of Duggan v. Davey, 4th Dak. 110, relied upon by the appellees, was decided in 1886, or more than a quarter of a century ago. Since that decision the case of Last Chance Mining Co. v. Bunker Hill & Sullivan Co., 131 Fed. 579, and other

cases involving the extralateral right to the Bunker Hill lode have been decided and it is now settled law that the extralateral right attaches, although in following the vein downward within the planes of the end lines of a claim one does so more along the strike than upon the dip.

In the opinion in the case of Duggan v. Davey, the court said:

“I think it clear that the law intended these lines (the end lines) to be laid substantially at right angles to the general course or strike of the vein, since in no other way could the locator be limited to a given length along the ledge.

“This seems to have been the view taken of the law by three learned judges who sat in the Richmond-Eureka case. It is true that they hold that the provisions of the law of 1872 requiring parallel end lines may be regarded as merely directory, so that a failure to so lay them would not invalidate the location; but I think the whole force of the observations of the court upon this point lies in their assumption that it makes no difference how the miner may choose to locate his end lines, *since the law admits his right to that section of the lode or ledge carved out by vertical planes drawn through the extreme points or ends of his line of location at right angles with a line representing the gen-*

eral course or strike of the lode.” (Italics ours.)
(26 N. W. 887.)

A careful study of the opinion in *Duggan v. Davey* shows that the controlling thought in the minds of the judges was that the vein cannot be followed in the exercise of the extralateral right except at a right angle to the strike of the vein, and it was because of this view that the court decided that the edge of the vein in question was not an apex.

If the law requires the end lines to be placed at right angles to the general course or strike of the vein and where this is not done the extralateral right is controlled by imaginary end lines forming right angles with the general course or strike of the vein, as held by the court in the *Duggan-Davey* case, there can be but one apex to any section of a vein and such apex is that part of the terminal edge of the vein from which the course is downward along the true dip line. The view that the extralateral right can only be exercised along the true dip line, or between vertical planes at right angles to the general course or strike of the vein, makes impossible such a situation as is presented in the cases involving the Bunker Hill vein. There cannot be any conflict of extralateral rights if the true dip line theory is accepted. We, therefore, submit that the *Duggan-Davey* case is contrary to the decision of this court in the *Last Chance-Bunker Hill* case,

131 Fed. 579, and is at variance with the law as recognized by the Supreme Court of the United States in the opinion in the case of Last Chance Mining Co. v. Tyler Mining Co., 157 U. S. 683, from which we quote as follows:

“For, while the disputed ore is on the dip of the vein within the extended vertical planes of the end lines of the Tyler claim, it is also within the legal end lines of the Last Chance claim and on the dip of the vein as it passes through that claim. Naturally, therefore, the controversy in the circuit court was upon the priority of location.”

It is apparent that the court in the quotation above made used the word “dip” as synonymous with “downward course.”

Mr. Lindley says:

“The land officers have no right to require that an end-line shall make a right angle, or any other particular angle, with the general direction of the vein. It is the locator’s privilege to give such direction to his end-lines as he pleases, so long as they are across the apex of the vein, are parallel to each other, and the length of the lode measured between them, on direct line between the extreme points on the vein within the location, does not exceed the statutory limit of

fifteen hundred feet.” (Lindley on Mines, 3d ed. p. 860.) (Italics ours.)

See also :

Last Chance Min. Co. v. Bunker Hill & S.
Min. etc. Co., 131 Fed. 579.

The Supreme Court of Idaho in the case of Steward Mining Co. v. Ontario Min. Co., 132 Pac. 787, in deciding that the edge of the vein along the Osborn fault in the Senator Stewart Fraction claim is not an apex, construed the words “downward course” and “course downward”, as used in section 2322 of the Revised Statutes of the United States, as having reference to a course more on the dip than along the strike of the vein.

It is apparent from reading the opinion of the Supreme Court of Idaho that the decision affirming the judgment of the lower court is based upon the proposition that the words “downward course,” as used in the Act of Congress, has reference to a course more on the dip than along the strike of the vein and that it is not permissible, in the exercise of the extralateral right, to pursue the vein more along the strike than on the dip. Except for this view of the law the decision would necessarily have been favorable to the plaintiff, as the evidence is conclusive that in following the vein from its termination along the Osborn fault to the Ontario claim

along planes parallel with the vertical planes of the end lines of the Senator Stewart Fraction claim extended, one passes from a higher to a lower elevation.

As we have shown in discussing the Duggan-Davey case, the meaning attributed to the words downward course necessarily influences the mind in determining whether or not a terminal edge is an apex. If downward course means a course forming an angle of not to exceed forty-five degrees with the true dip line, then the apex, while not limited to the particular part of a terminal edge within vertical planes forming right angles to the general course or strike of the vein, as held by the South Dakota court, is, nevertheless, limited to that part of the terminal edge which may be included within vertical planes forming angles with the true dip line of not exceeding forty-five degrees. On the other hand, if the words downward course have reference to a course from a higher to a lower level without regard to the angle such course forms with the strike or dip of the vein, then the only essentials to an apex are terminal edge and downward course therefrom, as said by Mr. Lindley, and the apex may be that part of the terminal edge which could not be an apex according to the decisions of either the South Dakota or Idaho courts.

It is conceded that the vein terminates along the Osborn fault, as shown by the exhibits. It was

further conceded in the lower court that there is a downward course from such terminal edge to the section of the vein and ore bodies beneath the Ontario claim, along vertical planes parallel with the vertical planes of the end lines of the Stewart Fraction claim extended. We find, therefore, that the two elements essential to an apex, according to the definition of apex, accepted by Mr. Lindley as correct, exist, namely: "terminal edge and downward course therefrom."

* * * * *

The fact that the vein on its downward course from the apex in the northerly portion of the Senator Stewart Fraction claim extends into and through the Stewart and Lazy Jean claims does not affect the extralateral right attaching to the vein beyond, and southerly of, the Senator Stewart and Lazy Jean claims.

Empire State etc. Co. v. Bunker Hill & S.
Min. Co., 114 Fed. 417.

Opinion and Decision of Lower Court.

The court decided that the extralateral right exists even though the course pursued in following a vein along vertical planes of the end lines of a claim extended, is more along the strike than on the dip. The court finds that the course pursued from the edge of the vein along the Osborn fault to the

ore bodies in controversy along vertical planes parallel with the vertical planes of the end lines of the Senator Stewart Fraction claim extended is *downward*.

When the court decided that the course pursued with reference to the strike and dip of a vein in the exercise of the extralateral right is immaterial, provided the course is downward, and found that the course from the termination of the vein against the Osborn fault to the ore bodies in controversy along lines parallel with the vertical planes of the end lines extended is downward, the conclusion followed as a matter of law that the edge of the vein along the Osborn fault is an apex.

The court says:

“That a downward course may be pursued upon the vein from this edge to the disputed ore bodies is conceded; but we are not to conclude that an edge is the apex merely because the vein may be followed therefrom upon an inclination downward; clearly cases may very well arise where such a course can be followed from an undercut or bottom edge. *Nor is it controlling that such downward course may be parallel with the end lines. The real relation of any given edge to the vein is in no wise affected by its relation to the boundary lines of the claim embracing it. These lines are wholly artificial*

and fortuitous, and if an edge is the top or apex of the vein it is such regardless of the question as to how the boundary lines of the claim are laid, or indeed whether any location at all has been made. (Italics ours.)

The statement that the question of apex is not to any extent dependent upon the relation of the claim and its lines to the vein and the edge thereof is fundamentally erroneous and the error thus made resulted in the decision against appellant.

Whether an edge is an apex must be considered with reference to the section of the vein embraced within the vertical planes of the end lines of the claim extended and therefore we cannot eliminate from consideration the situation of the lines of the claim with reference to the section of the vein in controversy. One can readily imagine a vein having an edge from which you can go upward from the edge in one direction and downward from the same point in the edge in another direction. Such edge is the top or apex of the section of the vein from which the course from the edge is downward and the side edge of that part of the vein from which the course is on a level and the bottom edge of that part of the vein from which the course is upward. So that, in determining whether an edge is an apex the edge should and must be considered with reference to the section of the vein embraced within

the vertical planes of the end lines of the claim extended and consequently the claim and the situation of the lines thereof with reference to the edge must necessarily be considered.

The court in the opinion says:

“These extralateral rights, however, are limited to such parts of the vein as lie between vertical planes drawn downward through the end lines and so extended in their own direction as to intersect the external part of the vein.”

The court thus recognizes that the extralateral right is defined and controlled by the lines of the claim. The court further recognizes that the “downward course” referred to in the Act of Congress has reference to the course along a vertical plane parallel with the vertical planes of the end lines. When, therefore, the court says that the question of apex must be decided without reference to the boundary lines of the claim, the statement is inconsistent with other parts of the opinion.

In considering the question of apex and the question of extralateral right the court should take into consideration only that part of the vein beneath the surface of the claim and within the vertical planes of the end lines extended. The term “vein,” as used in the Act of Congress, is used with reference to that part of the entire body of mineral which is within the claim and within the vertical planes

of the end lines of the claim extended. The term “apex,” as it appears in section 2322 of the Revised Statutes, is used with respect to a location and, as so used, the question of apex to any part of a vein is dependent upon the inquiry as to the situation of the claim with reference to the terminal edge of the vein embraced within the lines of the location.

The statement in the opinion that the question of apex is not to any extent dependent upon the relation of the claim and its lines to the vein and the edge thereof, overlooks entirely the fact that the inquiry should be directed solely to the section of the vein in controversy, and the relation of the terminal edge to that part of the vein as distinguished from the whole vein.

The lines of a location may be so placed that the terminal edge of the vein between the end lines is the apex to a section of the vein and the lines may be changed so as to make the same terminal edge the apex to an entirely different section of the vein.

Again, there may be different locations along a terminal edge of a vein, the lines of which are so situated that the terminal edge within each location will constitute an apex to the same section of the vein. This is illustrated by figure 98 on page 1441, Lindley on Mines, 3d ed.

As it is permissible to place the end lines of a location across the terminal edge of a vein at any angle and as the extralateral right attaches only to

the section of the vein between the vertical planes of the end lines of the claim extended, it necessarily follows that when an extralateral right is asserted the right must be determined with reference to the location of the claim and the relation of the lines thereof to the apex or terminal edge within the claim.

The lower court in the opinion says that the fact that there may be a downward course from a terminal edge does not necessarily prove an apex, as one can follow downward on a vein from an “under-cut or bottom edge.” It is undoubtedly true that a downward course may be followed from any point on the edge of the vein, provided such point is higher in elevation than any part of the vein. The top, side and bottom edges of a vein are necessarily to be determined by the situation of the vein in the ground and the relation of its edges to the surface of the earth. While, therefore, it may be possible to follow downward on a vein from a point in an edge which might be considered a bottom edge of a part of the vein, it is impossible to make a location upon the bottom edge of a vein. But, however this may be, we submit *that even through an edge as to some part of the vein may be considered a side edge or a bottom edge, if a downward course can be followed on the vein from such edge as to that section of the vein which is lower in elevation than such edge, and which can be so followed, it is a top or*

apex.

The suggestion of the lower court that a downward course may be followed on a vein from a bottom edge is in keeping with the view expressed that the question of apex should be determined without reference to the relation of a terminal edge to the mining claim and its boundaries. It is quite apparent that the lower court took a bird's-eye view of the whole vein as developed, and considered the terminal edge along the Osborn fault with reference to the entire vein which, as we contend, should not have been done.

* * * * *

The court refers to the angle at B on the diagram made a part of the opinion and says that this angle, except for the curvature in the vein at B, is less than a right angle. This is wholly immaterial, as is demonstrated by the fact that it is conceded that the "apex drift," shown on "Exhibit 1" is along the admitted apex and the apex as disclosed in this drift extends easterly and westerly to the point where it comes in contact with the Osborn fault. The application of the rule for determining apex, suggested by Mr. Lindley, to the edge or termination of the vein along the Osborn fault, proves that edge to be an apex irrespective of the claim or the lines thereof, as we will later show.

Although the court decided that the extralateral

right exists even though the course pursued is more along the strike than on the dip, provided the course is downward, reference is made in the opinion to the fact that "The general course of this vein (is) northeasterly and southwesterly." The general course of the vein is wholly immaterial in view of the law of the extralateral right as declared by the court, and the reference to the general course of the vein indicates a confusion of ideas.

The court further said:

"The actual inclination of the walls, however, is far from being uniform, and if in passing westerly from the Osborn fault we exclude the first two or three hundred feet the net declination is very slight. This segment of the vein, from two to three hundred feet wide along the fault, presents the appearance of having been bent upon from its normal course, and its inclination is therefore greatly in excess of the average."

The court further said:

"If we consider only a narrow strip of the vein along this edge or confine our attention to the showing of only a few selected cross-sections, doubtless a different view may be taken."

If it is an apex to a section of the vein extend-

ing two or three hundred feet from the Osborn fault, a valid location could be made thereon. An apex which will support a location is also an apex to which the extralateral right attaches, provided the course from such apex along lines parallel with the end lines of the claim is downward. In other words, an apex for one purpose is an apex for all purposes and once an apex always an apex. You cannot destroy an apex by exploration and development.

Section 2322 of the Revised Statutes of the United States provides that "The locators of all mining locations, heretofore made or which shall hereafter be made, on any mineral vein, lode or ledge * * * shall have the exclusive right of possession and enjoyment of all surface included within the lines of their locations and of all veins, lodes and ledges throughout their entire depth, the top or apex of which lie inside of such surface lines, extended down vertically," etc. In view of this language, it is impossible to have an apex which will support a location to which the extralateral right does not attach.

In the Flagstaff case, 98 U. S. 463, the court said:

"Perhaps the law is not so perfect in this regard as it might be; perhaps the true course of a vein should correspond with its strike, or the line of a level run through it; but this can rarely be ascertained until considerable work

has been done, and after claims and locations have become fixed. The most practicable rule is to regard the course of the vein as that which is indicated by surface outcrop, or surface explorations and workings. It is on this line that claims will naturally be laid, whatever be the character of the surface, whether level or inclined.”

The only requirement of the Act of Congress necessary to the extralateral right is that the course pursued should be downward and the court having found that the course is downward from the terminal edge of the vein along the Osborn fault it necessarily follows that such edge is an apex. By holding otherwise the lower court has, by judicial legislation, added a requirement that the edge of the vein must be the top edge to the whole vein and has completely ignored the clear intent of the Act of Congress that the terms “top” and “apex” and the words “downward course” should be considered with reference only to the section of the vein to which the extralateral right is asserted, which necessarily involves a consideration of the claim and the relation of its lines to the terminal edge.

Facts as Disclosed by the Evidence and Discussion of Same.

There is no controversy over the material facts to be considered in determining the question pre-

sented. The situation of the vein in the ground, its location with reference to the Stewart Fraction, Ontario and other claims and the conditions generally are shown by the maps and models introduced in evidence. The testimony of the witnesses consists principally of an explanation of these maps and models.

It was stipulated that the oral evidence and exhibits in the case of Stewart Mining Company v. Ontario Mining Company, et al., should be used in this case. (Record p. 28.) Certain of the exhibits of defendants were changed, and we desire to bring to the attention of the court a stipulation with reference to such changes, which reads as follows:

“It is hereby stipulated that the model of the defendants designated as Defendants’ Exhibit L is a duplicate of the model introduced in evidence in the case of the Stewart Mining Company v. the Ontario Mining, et al., referred to in the stipulations hertofore entered into, with the exception that the stopes were not shown on said model introduced in evidence in the state court, and it is further stipulated that the stopes as shown upon said model in the present cases were placed on the said model for illustrative purposes, and the data therefor was taken from the stope map of complainant, and there is no testimony in the record verifying

the correctness of said stopes as shown upon said model.

“It is further stipulated that the stopes shown upon defendants’ map Exhibit B were not shown upon the map introduced in evidence in the state court, and that there is no testimony in the record verifying the correctness of said map with reference to said stopes; that said stopes were placed upon said map for illustrative purposes, and are to be so considered.

“It is further stipulated that the development in the Switch Back and Ontario claims to which no reference is made in the testimony, was not shown on the said map introduced in evidence in the state court.”

Plaintiff’s exhibit 1 shows the boundaries of the Senator Stewart Fraction claim, the Ontario claim and other claims adjacent to the Stewart Fraction and Ontario, and also the workings and openings beneath these claims on the Stewart vein, with the exception of the stopes. The map is explained by the witness Clancy, a mining engineer by profession, who has been regularly employed by the appellant since the month of June, 1911. (Record pp. 56-63.)

Defendants’ exhibit B was made by the witness Callaway, a mining engineer, and is explained by him. (Record pp. 588-590.) This map is a similar

map to plaintiff's exhibit 1. Mr. Callaway, a witness for defendants, testified that he compared exhibit B with exhibit 1 and that while exhibit 1 is made on a scale of thirty feet to the inch, the two maps are substantially in accord and that there is "no particular point of discrepancy." (Record p. 590.)

Plaintiff's exhibit 2, referred to as the stope map, shows the location of the stopes and the extent of the stoping in the Stewart vein beneath the Stewart Fraction, the Senator Stewart, Switchback, Lazy Jean and Ontario claims. This map is also explained by the witness Clancy. (Record pp. 107-128.)

The map designated as plaintiff's exhibit 3 and referred to as the apex map shows the alleged apex of the vein with reference to the boundaries of the Stewart Fraction claim. (Record pp. 130-134.)

Plaintiff's exhibits 4, 5, 6, 7, 8 and 9 present pictures of cross sections of the vein and are designated as sections I, II, III, IV, V and VI. These cross section maps were prepared by Mr. Clancy and their correctness is shown by him. The lines through which the cross sections were taken are shown on both the plan map, exhibit 1, and the apex map, exhibit 3. Cross sections IV, V and VI are along vertical planes parallel with the plane of east end line of the Stewart Fraction claim. These cross sections show the vein from its termination

along the Osborn fault, which is said by the appellees to be the side or bottom edge and by the appellant to be the top or apex to the ore bodies in the Ontario. The other cross sections I, II and III present pictures of cross sections of the vein from the conceded apex in the Stewart Fraction claim. No. III is a cross section from the apex at the point where the apex crosses the southerly side line of the Stewart Fraction claim. Nos. I and II show cross sections through what is admitted to be the apex of the vein in the northerly part of the Stewart Fraction claim.

The maps designated as plaintiff's exhibits 10, 11, 12, 13 and 14, are plan maps of the different levels. They are explained by the witness Winchell and the geology appearing thereon is verified by him. (Record pp. 307-316.)

The large model, defendants' exhibit L, presents the conditions in the ground testified to by the witnesses for both sides substantially correct so far as it purports to represent the conditions necessary to be considered in determining the question of apex. The model shows the vein in red, the Osborn fault in blue and is explained by the witness Walter H. Wiley. (Record pp. 621-642.)

The model identified as plaintiff's exhibit 15, referred to in the testimony as the glass model, in which cross sections of the vein nearly, if not quite, at right angle to the course of the Osborn fault are

shown, is conceded to be correct although it is criticised by some of the witnesses for the defense as giving a false impression of the vein. This model illustrates and represents the apex of the Stewart vein along the Osborn fault and its downward course from such apex to a line a short distance southerly of the south side line of the Stewart Fraction claim. The model is explained by the witness Alfred Frank. (Record pp. 350-354.)

The large model, the glass model, and the maps identified as exhibits 1 and B and the maps showing cross sections of the vein designated as exhibits 4, 5, 6, 7, 8 and 9, all show conclusively that the course pursued in following the vein from its termination along the Osborn fault to the section of the vein and ore bodies beneath the Ontario along vertical planes parallel with the southerly end line of the Stewart Fraction is a pronounced downward course. In other words, the exhibits referred to disclose that the section of the vein and ore bodies therein beneath the Ontario are on a lower level than the level of the northerly termination of the vein in the Stewart Fraction claim when such levels are considered with reference to lines parallel with the end lines of the Stewart Fraction claim which are the lines to be considered in determining the extralateral right of the appellant to the vein in controversy. Not a single witness for the defendants contradicts these statements, while every wit-

ness for the appellant verifies their correctness.

The cross section maps, designated as plaintiff's exhibits 4, 5, 6, 7, 8 and 9, present evidence positive of the downward course of the vein from its northerly termination to the ore bodies beneath the Ontario. Mr. Boehmer, a witness for the defendants, who had examined these cross section maps, testified as follows:

“Q. Well, you have six cross sections that have been introduced in this case by plaintiff, haven't you?

“A. I have.

“Q. Have you found any mistake in those cross sections that you could point out?

“A. No, I think that they are all right.

“Q. Isn't it true that every one of those cross sections through the lines that have been given there show a downward course to the Ontario ore bodies?

“A. Yes, sir; that is correct.” (Record pp. 942-943.)

The cross section map, plaintiff's exhibit 4, shows a cross section of the vein taken along a vertical plane parallel with the vertical plane of the easterly end line of the Stewart Fraction claim from a point where the termination of the vein is dis-

closed above the 100 foot level, near the face of drift 105 east, as the same appears on Plaintiff's exhibit 1. (Record pp. 206-216.) The difference in elevation between the highest and lowest points in the vein, as shown by the cross section, is approximately 260 feet. (Record p. 210.) The length of the vein from its highest point to the point where it begins to flatten, is approximately 240 feet. (Record p. 213.) The average dip for this distance is 32 degrees. (Record p. 215.) The distance from the highest point to the lowest point of the vein shown on this cross section is approximately 1020 feet. (Record pp. 213-214.) A straight line drawn from the highest point to the lowest point in the hanging wall would have an inclination of approximately 20 degrees, and a straight line drawn from the highest point to the lowest point in the foot wall, would have an inclination of approximately 13 degrees. (Record pp. 215-216.)

Exhibit No. 5 shows the cross section of the vein along a vertical plane, passing through the apex of the vein, as the apex is admitted by the witnesses for defendants'. The apex of the vein is disclosed in the raise above the apex drift about ten feet below the surface. This cross section does not picture the vein above the apex drift. The cross section shows that the hanging wall, as it appears on this cross section, has an inclination of approximately 20 degrees, and a line drawn from the highest point on

the foot wall to the lowest point in the foot wall, would have approximately the same inclination. The distance from the highest point to the lowest point of the vein, as shown on this exhibit, is approximately 1200 feet. The difference in elevation between the same points is 400 feet. (Record pp. 216-221.)

Exhibit No. 6 shows a cross section of the vein along a vertical plane passing through the apex of the vein, as admitted by witnesses for defendants, which is disclosed in the raise above the apex drift. The cross section of the vein shown on this exhibit is taken along, approximately, the true dip of the vein from the apex. That this is true will appear from a reference to plaintiff's exhibit 1, which shows that the line of the cross section forms approximately a right angle with the strike of the vein, as disclosed by the drifts on the vein, beneath the Stewart Fraction claim. The length of the vein, measured along the hanging wall, as shown on this exhibit, is approximately 1000 feet. (Record p. 223.) The angle of inclination of a line connecting the lowest point and the highest point in the hanging wall is approximately 30 degrees, and the angle of inclination of a line from the highest point in the foot wall to the lowest point in the foot wall is approximately 35 degrees. (Record p. 223.) The difference in elevation between the highest and lowest points in the vein, disclosed by this exhibit, is ap-

proximately 440 feet. (Record pp. 223-224.) The angle of inclination from the highest point for a distance of approximately 130 feet to the point where the vein flattens is 45 degrees. (Record p. 224.)

Exhibit No. 7 shows a cross section of the vein along a vertical plane passing through the apex of the vein where it crosses the southerly side line of the Stewart Fraction claim and the most southerly exposure of the vein. The difference in elevation between the highest point and the lowest point of the vein shown on this exhibit is 410 feet, and the angle of inclination of a line drawn from the highest point in the hanging wall to the lowest point in the hanging wall is approximately 35 degrees, and of a line from the highest point in the foot wall to the lowest point in the foot wall is approximately 25 degrees. The length of the portion of the vein shown by this cross section is 1080 feet. (Record pp. 225-229.)

Exhibit No. 8 is a map of a cross section of the vein taken along a vertical plane parallel with the vertical plane of the easterly end line of the Stewart Fraction claim. The length of the vein shown by this cross section is 1050 feet. The difference in elevation between the highest point and the lowest point in the hanging wall is approximately 200 feet, and the difference in elevation between the highest point and the lowest point in the foot wall is ap-

proximately 145 feet. The angle of inclination of a line drawn between the lowest and highest point in the hanging wall is approximately 10 degrees, and of a line between the highest and lowest point in the foot wall is approximately 6 degrees. (Record pp. 229-230.)

Exhibit No. 9 is a map of a cross section of the vein taken along a vertical plane parallel with the vertical plane of the easterly end line of the Stewart Fraction claim, as shown on plaintiff's exhibit 1. The difference in elevation between the lowest and the highest point in the vein, as shown on this map, is approximately 385 feet. The angle of inclination from the highest point in the hanging wall to a point where the vein flattens, a distance of approximately 250 feet, is 40 degrees. (Record pp. 231-234.)

The fault shown on plaintiff's exhibits 5 and 9 is the same fault referred to in the testimony as No. 11 fault which separates the May ore body from the Frank ore body beneath the Ontario. It is conceded that the ore bodies beneath the Ontario are a part of the same vein terminating along the Osborn fault, and consequently this fault is not material in determining the question presented.

The testimony of the witness Clancy with reference to these cross sections is not contradicted, and, as stated, it is conceded by defendants that the maps of the cross sections are correct. In view of

the conditions disclosed by these cross sections, as well as by the large model, defendants' exhibit L, the glass model, plaintiff's exhibit 15, and exhibits 1 and B, it is established beyond controversy that there is a downward course from the termination of the vein along the Osborn fault to the section of the vein and ore bodies beneath the Ontario.

Mr. Clancy testified that the elevation at the apex, as the same is disclosed in the raise above the apex drift, designated as "Raise 4 East," is 3025 feet, and that the elevation of the apex, as it crosses the easterly end line of the Stewart Fraction claim, is 2672 feet. (Record p. 135.) The angle of inclination of the apex is approximately 30 degrees between the points referred to, which is approximately the angle of the slope of the mountains in the vicinity. (Record pp. 135-136.) This testimony is not controverted. Mr. Clancy testified that the course of the apex from where it is exposed in the raise above the apex drift to the point where it crosses the easterly end line of the Stewart Fraction claim, is approximately south 40 degrees east. (Record p. 168.) The places where the apex is exposed along the Osborn fault, and the difference in elevation between the different places are stated and explained by the witness Clancy. (Record pp. 179-182.) This testimony is corroborated by other witnesses for the appellant and is not contradicted.

The witness Lawson testified:

“Q. Now, in taking your strike of the vein are you taking the strike of it in the immediate portion where it comes in contact with the Osborn fault, or are you taking it at some other portion of the vein, adopting some general course?

“A. I am taking the general course of the vein.” (Record p. 579.)

He further says that the vein in the vicinity of the fault “is an abnormal portion of the vein,” and that “you have got to follow the vein far from the fault in order to get the true strike.” (Record p. 577.) Professor Lawson further testified that where there is such an abnormal condition which can be accounted for geologically, he would in determining the strike and dip of a vein, consider the conditions which obtained before the disturbance occurred which caused the deformity. (Record 542.) In other words, he imagines the condition and location of the vein prior to the fault, and the picture thus presented is used by him in determining the dip and strike of the vein.

Mr. Searles, a witness for the defendants, testified as to the course or strike of the vein. In determining the strike of the vein he took the general course of the vein as the same is disclosed throughout three levels. (Record pp. 844-850.) The distance along the vein on the different levels consid-

ered in determining the strike, was from 600 to 900 feet.

The following is quoted from his testimony:

“Q. Then in taking the course of any vein you study the geological causes for the position the vein occupies and take those into consideration?

“A. To a certain extent, I do, yes, sir.

“Q. Now to what extent?

“A. In so far as there are abnormal variations in the course of a vein which are plainly attributable to an external cause, I would eliminate those irregularities or abnormal courses from the interpretation of the true course of that vein.” (Record p. 852.)

Mr. Clancy testified that the strike of the Stewart vein as the same is developed for a distance of 120 feet away from the Osborn fault forms an angle with the strike of the fault of approximately 25 degrees and that the farther you go from the fault the larger the angle. He also says that on the 100 foot level there is mineable ore for a distance of 100 feet on the same strike as the fault.

Mr. Clancy further testified as follows:

“I have taken, measuring from the south side line of the Senator Stewart Fraction, on

each level of the mine where the vein has been developed, and measured off each 100 feet or thereabout along the footwall of the vein as shown upon our individual level maps which have been placed in evidence and added those courses taken on each level, and obtained a course in that way which is approximately the course of a line from the point that the footwall of the vein crosses the south side line of the Senator Stewart Fraction to a point where the footwall is terminated against the Osborn fault.

* * *

“The general course as determined in that way on the old Stewart tunnel level is north 67 degrees east; on the 100 foot level it is north 55 degrees east; on the 200 foot level it is north 54 degrees east; on the 300 foot level it is north 50 degrees east, and on the 400 level it is north 56 degrees east.” (Record pp. 970-971.)

Profesor Tolman, a witness for appellant, says that the termination of the vein along the Osborn fault is the apex “because it is the upper termination of the vein.” (Record p. 431.)

He further testified, in substance, as follows:

The strike of the Osborn fault on the 400 level is north 80 degrees west and the dip averages 65 degrees. The strike of the Stewart vein

at the same place is south 83 degrees west and the dip 45 degrees in a southerly direction and that the included angle between the two strikes is 12 degrees. On the 300 level the Osborn fault has a strike north 70 degrees west and dips in a southerly direction at an angle of 70 degrees. The vein has a strike south 88 degrees west and dips in a southerly direction 50 degrees and the included angle between the two strikes is 22 degrees. On the 200 level the strike of the Osborn fault is north 80 degrees west, its dip is 70 degrees in a southrely direction and the strike of the vein is south 76 degrees west and its dip is 50 degrees. The included angle between the two strikes is 24 degrees. The strike of the Osborn fault on the tunnel level is north 70 degrees west, and its dip is 80 degrees. The strike of the vein is south 85 degrees west and its dip is 35 degrees in a southerly direction. The included angle is 25 degrees. In the apex drift the strike of the Osborn fault is north 75 degrees west and its dip is 65 degrees southerly. The strike of the vein is south 83 degrees west, the included angle is 22 degrees. The dip of the vein is approximately 40 degrees. (Record pp. 433-435.)

Mr. Wiley, a witness for defendants, testified that the apex is disclosed in the apex drift and in the upraise therefrom. (Record p. 698.) He fur-

ther testified that he uses the word apex “as describing the top of the vein.” (Record p. 702.)

Mr. Hershey, a witness for the defendants, and a geologist by profession, testified that a section of the apex is probably disclosed in the apex drift along the blue line x-7 on defendants’ exhibit B. (Record p. 748.) He drew a line passing through the apex drift showing the dip of the vein. This line is marked A-B. (Record pp. 749-750.) He then identified the termination of the vein along the Osborn fault at different places and drew a line along the edge of the vein with a blue pencil designated by the letters “C” and “D”, showing the course of the edge of the vein as he observed it. (Record pp. 752-753.) The course of the line thus drawn is about north 50 degrees west. (Record p. 753.)

We quote further from the testimony of Mr. Hershey as follows:

“Q. Well, I am taking an assumed shape of a vein, and we carry it up along the fault, and I am asking you, assuming that the top of that vein is on a horizontal plane with the apex drift or the apex disclosed in the drift, and that this vein is cut off at a distance of 200 feet, we will say, away from the present line of termination against the Osborn fault, and I will ask you now if that edge on a level with the apex drift would be the top or apex according to your

undersanding of an apex?

“A. Yes, in that case, which is not at all analogous to the case which is being tried here. This seems to be entirely a supposition case. In that case it would be a portion of the apex.”

* * * (Record p. 762.)

“Q. And is it not true that the vein would have to be cut down the line of the dip in order to get a side edge?

“A. Yes, sir, it is, because if cut on any other line it would either be an upper edge or a lower edge.” * * * (Record p. 765.)

“Q. I will ask you to start at any point in that line which you have marked as the line of cut-off and depart at right angles from that line of cut-off and follow the vein 200 feet, and state whether or not you would not be pursuing a downward course for that entire distance—departing at right angles to the line of cut-off?

“A. Yes, that is true so far as the short bentup section along the fault is concerned; it is not true when you consider the vein as a whole; that refers to a very short portion of the vein along the fault.

“Q. One more question. You have already said that in order to have a side edge you must have a cut-off parallel with the line of your dip; is that not correct?

“A. Yes sir.

“Q. And at right angles to your strike?

“A. Yes sir.

“Q. Then, is it not true that any line or cut-off that diverges from your line of dip as you go downward on the vein makes a top edge and not a side edge or bottom edge?

“A. That is true. (Record pp. 769-770.)

“Q. If we should go here to this map and take the section I just called your attention to, a section of this vein 200 feet away from this line of cutoff and you say that for that distance there would be a downward course, as I understand you, passing at right angles to the line of cutoff?

“A. I don't know just how far you would go on a downward course, but a short distance until finally you would begin practically along the strike of the vein.

“Q. Well, take a section here 200 feet from your line of cutoff and as to that section of the vein would this line of cutoff be a top edge?

“A. If you cut that section of the vein away and do not consider it at all in connection with the remainder of the vein, and if you define it as a vein, that edge would be a top edge.

“Q. And in your statement that this is a side edge you take into consideration the entire course of this vein as shown through all of these workings?

“A. I do.” (Record p. 771.)

* * * * *

It thus appears that Mr. Hershey invokes the same rule recognized by Mr. Lindley for determining the question of apex. He says that when the edge of the vein forms an angle of less than 90 degrees with the strike of the vein the edge is a top edge or apex. He also says that where the line of termination of a vein diverges from the true dip line as you go downward the termination is a top or apex. Taking the dip line as drawn by him on plaintiff's exhibit 1 from the conceded apex in the apex drift and the course of the line marking the termination of the vein along the Osborn fault as drawn by him, and applying the rule which he invokes for determining the question of apex, we find that, according to his own admissions, the edge of the vein along the fault is a top or apex. He admits that if we take a section of the vein 200 feet from the termination along the Osborn fault and consider this section by itself and independently of the balance of the vein, the edge along the fault would be a top or apex, but not when considered with reference to the whole vein.

It is conceded that the vein has a pronounced downward course from the edge along the Osborn fault and that the strike of the vein for a distance of 200 feet from this edge is such that the edge is the apex of that part of the vein included within the section 200 feet from the edge. If the mountain had been eroded down to this edge so that the edge constituted an outcropping, there is no question but that a valid location could be made along such outcrop. If the outcrop would be considered an apex for the purpose of a location it is then an apex for the purpose of following the vein in the exercise of the extralateral right. It is impossible to have an apex which will support a location to which the extralateral right does not attach.

Two of the leading witnesses for defendants, Mr. Wiley and Mr. Boehmer, as well as Mr. Hershey, accept the rule announced by Mr. Lindley for determining the question of apex. Mr. Boehmer says that when the strike of the vein and the strike of the edge of the vein form an angle of 90 degrees, the edge ceases to be a top edge or apex. (Record p. 939-940.) Mr. Wiley admits that when the included angle between the strike of the vein and the course of the edge of the vein is less than 90 degrees the edge is the top or apex. (Record pp. 702-705.)

In view of the rule recognized by Mr. Lindley and accepted as correct by the defendants, the edge

of the vein along the Osborn fault is the apex of the vein. Mr. Clancy testified that the strike of the vein for a distance of 120 feet from its termination forms an angle above the line of strike with the strike of the fault of approximately 25 degrees. He further testifies as to the course of the vein from the fault to the south side line of the Stewart Fraction claim as exposed on the different levels. (Record pp. 970-971.) This testimony is not controverted and conclusively shows that, according to the rule referred to, the edge of the vein is the apex thereof. Again, the testimony of Professor Tolman with reference to the included angle between the strike of the vein and the course of the termination of the vein along the fault, demonstrates that the edge of the vein along the fault is an apex. This testimony of Professor Tolman is not disputed. Without reference, however, to the oral testimony as to the strike and course of the vein, the cross section maps prepared and presented by Mr. Clancy, the general maps, plaintiff's exhibit 1, and defendants' exhibit B, and the large model, as well as the glass model, all speak louder than words in support of the contention that the terminal edge of the vein along the Osborn fault is an apex and that there is a downward course from this apex to the ore bodies in the segment of the vein beneath the Ontario between the planes described in the complaint.

The testimony of the Witness Hershey quoted

explains fully the position assumed and the contention made by defendants. According to Mr. Hershey, and the other witnesses for the defendants, the edge of the vein along the Osborn fault is the terminal edge of a part of the vein but is not an apex because a terminal edge, to be an apex, must be the terminal edge of the vein considered as a whole. Mr. Hershey admits, and the other witnesses for the defendants by their testimony concede, that the termination of the vein along the Osborn fault is an apex if only a slice or section of the vein, extending downward for a distance of two hundred feet, is to be considered. In other words, the appellant lost the apex by development which has exposed the vein for several hundred feet southerly and disclosed a change in the dip and strike. The lower court seems to have accepted the position and claim of the defendants as correct.

It is the situation of the vein at and in the vicinity of the terminal edge and the relation of the terminal edge to the lines of the claim which control.

The change in the strike of the vein as shown by the development southerly of the terminal edge along the Osborn fault is immaterial.

Mining Co. v. Tarbet, 98 U. S. 469.

In the opinion in the case just cited the court said:

“The location of the Titus, claimed by the

defendant in error, nearly corresponds with this surface course of the vein. The location of the Flagstaff, belonging to plaintiffs in error, crosses it nearly at right angles.

“The principal difficulty in the case arises from the fact that the surface is not level, but rises up a mountain in going from the Titus discovery to the Flagstaff. The dip of the vein being northeasterly, it happens that, by following a level beneath the surface, the strike of the vein runs in a northwesterly direction, or about north 50 degrees west. In other words, if by a process of abrasion the mountain could be ground down to a plane, the strike of the vein would be northwest instead of west, as it now is on the surface; or, at least, as the evidence tended to show that it is. In that case, the location of the defendant in error would leave the vein to its right, and the location of the plaintiff in error would not reach it until several hundred feet to the north of the Flagstaff discovery.”

Mr. Lindley at page 1333 of his *Work on Mines*, 3d Ed., presents a figure showing the Flagstaff and Titus claims, the apex of the vein and the course and direction of the vein below the surface as disclosed by the workings thereon.

The court in the opinion in the Flagstaff case,

in discussing and considering the contention made that the rights of the parties should be determined by reference to the true course or strike of the vein and not by the course of the apex, said:

“We do not mean to say that a vein must necessarily crop out upon the surface, in order that locations may be properly laid upon it. If it lies entirely beneath the surface, and the course of its apex can be ascertained by sinking shafts at different points, such shafts may be adopted as indicating the position and course of the vein; and locations may be properly made on the surface above it, so as to secure a right to the vein beneath. But where the vein does crop out along the surface, or is so slightly covered by foreign matter that the course of its apex can be ascertained by ordinary surface exploration, we think that the Act of Congress requires that this course should be substantially followed in laying claims and locations upon it. *Perhaps the law is not so perfect in this regard as it might be; perhaps the true course of a vein should correspond with its strike, or the line of a level run through it; but this can rarely be ascertained until considerable work has been done, and after claims and locations have become fixed. The most practicable rule is to regard the course of the vein as that which is indicated by surface outcrop, or surface explora-*

tions and workings. It is on this line that claims will naturally be laid, whatever be the character of the surface, whether level or inclined.’ (Italics ours.)

The appellees in the case before the court are making the same contention which was rejected in the Flagstaff case. They are contending that the rights of the parties should be determined with reference to the general course of the whole vein and that the situation of the part of the vein in the Stewart Fraction claim and of the edge along the Osborn fault should be ignored. This contention is contrary to the law as declared in the case referred to and also by Mr. Lindley, who says on page 725 of his work on mines:

“The ‘course of the vein’ appearing on the surface is plainly the course of its apex, which is generally inclined and undulating and departs more or less materially from the ‘strike’. The miner is required to locate his claim ‘along the vein’ which plainly means along the outcrop or course of the apex. It would be impracticable for him to locate it along the strike, as it usually takes years of underground work to determine the strike through the length of his claim. It is often difficult even to locate properly along the apex, especially where the walls are obscured by surface disintergration

or are covered with a capping or a large accumulation of detritus.”

He further says on page 725:

“It sometimes happens where the dip of the vein is at a small angle from the horizontal, and the surface of the ground is steeply inclined, that the course of the apex departs widely from the strike of the vein developed in the underground working, as illustrated on figure 27. Some veins are curved and warped to an unusual extent, with greatly varying strike and dip, as illustrated on figure 28. The smaller the dip the greater the variations in strike. These facts often lead to disputes concerning identity of the various parts explored, but with the identity once established, the departure of the apex from the strike-line and the variations in strike and dip do not affect the rights attaching to a proper location along the line of the apex.”

In concluding the discussion, we submit that the edge or end of the vein along the Osborn fault is the top or apex within the meaning of these words as used in section 2322 of the Revised Statutes of the United States and that there is a downward course from this apex to the ore bodies in controversy. Every requirement of the statute necessary to the exercise of the extralateral right by appellant is fulfilled. To hold otherwise would do violence to

the statute by imposing conditions which are not contained in the statute. This is not permissible as said by the Supreme Court of the United States in the case of Calhoun Min. Co. v. Ajax Gold Min. Co., 182 U. S. 499.

Respectfully submitted,

C. S. THOMAS,
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Solicitors for Appellant.

United States

Circuit Court of Appeals

NINTH CIRCUIT

STEWART MINING COMPANY,
Appellant,

vs.

JONATHAN BOURNE, Jr., and
 LILLIAN E. BOURNE, His
 Wife,

Appellees.

No. 2390.

BRIEF OF APPELLEES.

MYRON A. FOLSOM,

Counsel for Appellees.

FACTS.

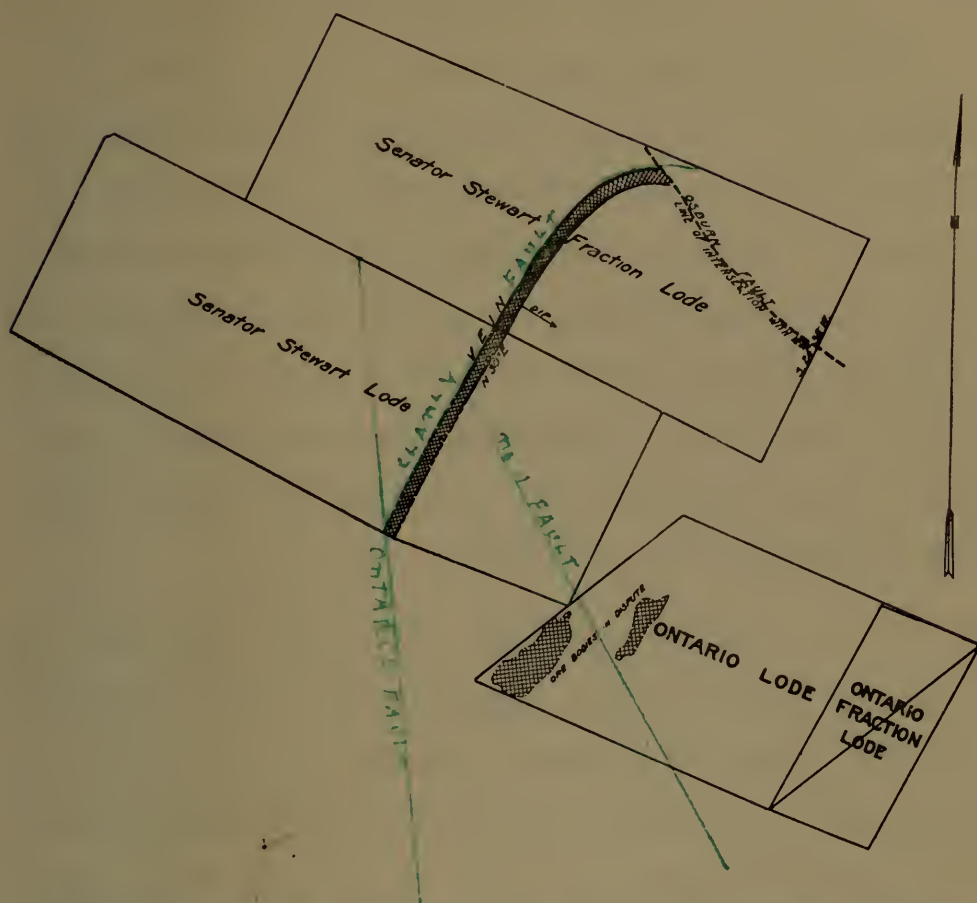
The identical contentions here made by appellant company were decided adversely to it by the Supreme Court of Idaho, in a case in which appellant was plaintiff and certain lessees of Bourne were defendants (23 Idaho 724). A copy of the evidence presented in that case has been filed and constitutes the evidence in this case.

The Stewart Mining Company is asserting extralateral rights upon a vein within the Senator Stewart Fraction Lode Mining Claim southerly in the direction of the located end lines of the claim. It bases its claim upon the theory that the terminal edge of the vein against a large fault, known as the Osborn Fault, constitutes a portion of the apex of the vein. The respondents deny that such terminal edge constitutes a portion of the apex, but insist that the edge in question is a side or bottom edge of the vein and not the top or apex thereof.

The Senator Stewart and the Senator Stewart Fraction Lode Claims are owned by the Stewart Mining Company. The Ontario is owned by Jonathan Bourne, Jr.

The end lines of the Stewart Fraction Claim are parallel; the side lines of that claim are not parallel (see pleadings); the side lines of the Senator Stewart Claim are likewise not parallel.

The relative position of these several claims is shown upon the diagram:



Underlying a portion of each of these claims there are ore bodies, all of which are part of a vein which nowhere reaches the surface. The general course of the vein at its highest terminal edge beneath the Clancy Fault is N. 30° E. (Rec. pp. 147, 148, 526, 593, 636, 641, 888, 890), and it dips southeasterly at an angle of about 40° from a horizontal. In its upward course the vein is cut off by the Clancy Fault, which ex-

tends from a point near the south side line of the Senator Stewart Claim to a point near the north line of the Stewart Fraction Claim.

While evidence was given to the effect that a segment of the vein exists west of and above the Clancy Fault, the State Courts in the case hereinafter referred to adopted plaintiff's testimony that the terminal edge of the vein beneath the Clancy Fault constituted the apex of the vein. This fault dips northwesterly (Rec. p. 500), and the upper edge of the vein beneath this is practically level (Rec. p. 637).

The terminal edge of the vein beneath the Clancy Fault passes beneath the south side line of the Stewart Fraction Claim on a course substantially at right-angles to it. It continues on a course of about N. 30° E. until it reaches a point about 100 feet south of the north side line, where it terminates against the Osborn Fault.

The vein is terminated on its course southwesterly by a fault known as the Ontario or Cate Fault, which has a northwesterly course and dips southwesterly. (Rec. pp. 472, 473, 500, 501, 527.)

Another fault known as the No. 11 Fault separates the vein into two parts. (Rec. p. 840.)

The vein is terminated on its northeasterly course by a fault of great magnitude, known as the Osborn Fault.

The edge of the vein against the Osborn Fault has an onward course of about N. 41° W. (Rec. pp. 168, 512, 571, 636, 641, 705, 774), and a downward course southeasterly of about 30° (Rec. p. 135, 373), and where it passes underneath the east end line of the claim it is about 350 feet lower than it is at the point nearest the north side line of the claim. This edge of the vein against the Osborn Fault when it reaches the vicinity of the fault is bent upward.

The Stewart vein is part of a system of veins in that section of the country, which includes the Jersey Vein, the Barr Vein, the Caledonia Vein, and the Sierra Nevada Vein. The general strike of all these veins is northeasterly and their dip is southeasterly. (Rec. pp. 525, 526.)

WAS THE SENATOR STEWART FRACTION
CLAIM PROPERLY LOCATED WITH REF-
ERENCE TO THE DISCOVERY VEIN.

It will not be necessary for this court to decide whether the case of Work Mining Co. vs. Doctor Jack Pot Company, 194 Fed. 620, was or

was not correctly decided.

In the Dr. Jack Pot case, the complaint alleges and the answer admitted that the vein there in controversy was not the discovery vein.

Counsel for appellant concede that there is neither allegation nor proof with reference to the discovery vein in the Stewart Fraction Claim. There is nothing which even suggests that the vein in dispute is not the discovery vein.

In the complaint in this case it is alleged that the top or apex of the vein here in controversy "crosses the easterly end line of said (Stewart Fraction) Claim at approximately the center thereof between corners Nos. 1 and 2 and extends within the boundaries of said claim in a westerly direction following the general course of said claim for a distance of seven hundred feet more or less."

As the vein here in controversy according to the allegations of the complaint occupies the position of the theoretical discovery vein, would it not be presumed in the absence of allegation or proof concerning a discovery vein, that the vein here involved was the discovery vein?

If then in the present case the vein in contro-

exterior boundaries of a prior location belonging to defendant. In order that such proof should avail the defendant it must further appear that such passage from the apex of defendant's lode is made *continuously downward* on the dip of that lode, and if any *portion of such passage must necessarily be made either upward or laterally along the strike*, then plaintiff's right to recover is not affected."

We have always understood that a vein cannot be followed upon its true strike, and for that reason when a vein crosses the side line of a claim instead of the end lines, the side lines become, in law, the end lines of the claim. If a vein may be followed on its true strike and on a level, we are at a loss to understand what reason could be assigned by any court for treating the side lines of a claim as the end lines in any case.

CONCLUSION.

While counsel for appellant seem to concede the well-settled rule that the owner of the patented surface overlying the segment of a vein in dispute, is *prima facie*, the owner of everything beneath such surface, they contend that this presumption is overcome by showing, first, that the segment of the vein in dispute is between the vertical planes extended through the end lines of another patented claim; and, second, that an edge

of the vein is within the surface lines of the latter claim.

This contention is fallacious. The presumption will not be overcome until the one who claims extralateral rights shows that the edge of the vein within his claim constitutes a portion of the apex of the vein and that the edge is so situated with reference to the lines of his claim as to entitle him to follow the vein on its downward course in the direction he desires.

The fallacy of appellant's contention is illustrated by the Horseshoe Case (*Iron Silver Co. v. Elgin Co.*) 118 U. S. 196, where the Stone Claim contained the apex of the vein; but was denied extralateral rights in the direction of the Gilt Edge Claim beneath which the vein passed on its downward course.

The contention is also answered by the King-Amy Case, 152 U. S. 223, where the Amy Claim was denied extralateral rights in the direction of the dip of the vein notwithstanding the fact that the Amy Claim contained the apex of the vein and notwithstanding the ores in controversy were within the vertical planes of the end lines of the Amy Claim extended in their own direction.

versy may be considered the discovery vein and if the presumption is not conclusive that the vein was correctly located with reference to it, we may look to the evidence to determine whether the vein extends lengthwise or crosswise of the claim. The great weight of the evidence is to the effect and three courts have adjudicated that the vein within the Stewart Fraction claim crosses the south side line of that claim at nearly right angles to it and extends northerly practically parallel to the end lines, but does not reach any other line of the claim.

But if we were to assume, without either allegation or proof, that the vein now in controversy is not the discovery vein, and if we were to further assume that there is a discovery vein extending from end line to end line of the claim, the present vein could not be made the basis for extralateral rights southerly if it crosses a side line and runs practically parallel with the end lines as found by the Court.

Cosmopolitan Min. Co. v. Foote, 101 Fed. 518.

Costigan on Mining Law, p. 449, 414.

Stewart Min. Co. v. Ontario Min. Co., 23 Idaho, 724, 741.

In the trial court appellant predicated its claim “wholly upon the assumption that the terminal edge at B-C (i. e. the edge against the Osborn Fault) is apex.” (Rec. p. 44.) If it is the intention of counsel to make the contention here that appellant would be entitled to extralateral rights southerly upon the vein in controversy regardless of whether the terminal edge against the Osborn Fault is or is not a part of the apex of the ore bodies in dispute, such contention is sufficiently answered by the authorities to which we have referred.

Moreover, there is as good an apex in the Ontario Claim as there is in the Stewart Fraction (Trans. pp. 841-843), and the Ontario was located and patented long prior to the location of the Stewart Fraction. There is also a better apex to the vein in the Silver Casket, Carbonate and Sierra Nevada Claims than that found in the Stewart Fraction, if the end of a vein against a fault may be called an apex. We refer to the end of the vein beneath the Ontario fault.

THE LOWER COURT CORRECTLY DECIDED THAT THE TERMINAL EDGE OF THE VEIN ALONG THE OSBORN FAULT IS NOT AN APEX.

The District Court, in deciding this case, said:

“The real relation of any given edge to the vein is in no wise affected by its relation to the boundary lines of the claim embracing it. These lines are wholly artificial and fortuitous and if an edge is the top or apex of a vein, it is such regardless of the question as to how the boundary lines are laid, or indeed whether any location at all has been made. * * *

“When in the light of all the evidence, including the numerous maps and charts, and especially the defendants’ large model, which is admitted to be substantially correct, we project the vein in its entirety and contemplate the position it occupies in the enclosing country and the relation of its terminal edges to each other and to the horizon, the first and persistent impression undoubtedly is that the edge B-C (i. e. the edge along the Osborn Fault) is its end or side and not its top or apex; and such is the view I feel bound to adopt.”

The Idaho State District Court, in the case of Stewart Mining Co. vs. Ontario Mining Company had before it the identical evidence which is now before this Court, and held:

“That the end of the vein as the same is terminated on the onward course of the said vein against the fault hereinbefore referred to is the end of the vein on the line of its dip and the said vein is undercut by the said fault in such manner that if the country below the fault were eroded it would present the appearance of an overhanging cliff. Quoted in 23 Idaho 732.

The Idaho Supreme Court, upon the evidence now before this Court, said.

“In no rule or definition to which our attention has been called can the end edge of the vein along the Osborn fault be treated as an apex of the vein and ore bodies in question which are being worked beneath the surface boundaries of the Ontario. We cannot understand how an overhanging end edge of the vein cut off, as the evidence shows this has been, can in any sense be called the top or apex of the vein.”

Stewart Mining Co. v. Ontario Min. Co. 23
Idaho 742.

See also 23 Idaho 280.

Counsel for appellant contend that not only was the United States District Court in error in deciding that the edge of the vein against the Osborn Fault is not the apex of the vein, but they likewise contend that the Idaho State District Court and the Idaho Supreme Court were in error in so holding.

In approaching a consideration of this question, we must not lose sight of the fact that the ore bodies in controversy are beneath the surface of the Ontario Mining Claim, which was patented seven years before the Stewart Fraction Claim was even located, and there is a strong presumption

that those ore bodies belong to the owner of the Ontario Claim. The proposition is too elementary to require discussion. As said by the Supreme Court of the United States:

“While proof of ownership of the apex may be proof of the ownership of the vein descending on its dip below the surface of property belonging to another, yet such ownership of the apex must first be established before any extralateral title to the vein can be recognized. * * * They (the owners) must show that the ore was taken from a vein belonging to them. Was there a vein? Where was its apex and who is the owner of that apex?” ’ ’ ’

U. S. Mining Co. v. Lawson, 207 U. S. 1.

What constitutes the top or apex of a vein?

The authorities all agree that the words “top or apex” were not miner’s words, but they were first used as mining terms at the time the statute was passed. The word “top” is a common word. It requires no legal learning, no geological knowledge, no engineering knowledge, to determine its meaning; only the common knowledge of an average man is required to tell what constitutes the top of anything, and the courts have given the term “top” its usual meaning in construing this statute. Unless this Court finds that there is something occult or mysterious in the word “top,” as

used in the statute of the United States, contrary to the usual meaning, this case must be determined in favor of defendant.

Mr. Costigan, in his work on mining law, page 105, thus defines apex:

“The apex is the top of the lode, whether that top outcrops or whether it is overlaid.”

Chief Justice Beatty defined the word apex as follows:

“The top or apex of any part of a vein is found by following the line of its dip up to the highest point at which vein matter exists in the fissure.” Quoted in *Duggan v. Davey*, *infra*.

In *Duggan v. Davey*, 4 Dak. 410, 26 N. W. 887, the Court said:

“It is indeed difficult to see how any serious question could have arisen as to the practical meaning of the term ‘top’ or ‘apex,’ but it seems in fact to have become somewhat clouded. I apprehend that if any intelligent person were asked to point out the top or apex of a house, a spire, a tree or a hill he would have no difficulty in doing so, and I do not see why the same common sense should not be applied to a vein or lode. Statutory words are to receive their ordinary meaning or interpretation except where shown to have a special meaning, and as I think the testimony shows that these terms were unknown to miners before the statute, the ordinary rule would seem to apply to them.”

The Supreme Court in *Larkin v. Upton*, 144 U. S. 19, quotes the instruction of the trial court as follows:

“The apex of a vein or lode is the highest point thereof and may be at the surface of the ground or at any point below the surface.”

The Supreme Court, commented on this instruction as follows:

“While the giving of this instruction was at the trial excepted to, error has not been here assigned thereon, and with one construction, at least, it is undoubtedly correct. The apex of the vein is not necessarily a point, but often a line of great length. Any portion of the apex *on the course or strike of the vein* found within the limits of a claim is sufficient discovery to entitle the locator to obtain title.”

Mr. Ross E. Brown thus defines the word apex:

“The apex is all that portion of the terminal edge of the vein from which the vein has extension downward in the direction of its dip.” Quoted in *Lindley on Mines*, Sec.309.

Appellant quotes at length from the discussion of the subject found in *Lindley on Mines*, but omits to quote certain important language contained in Section 309, where the author says:

“Of course, in speaking of the edge of the vein nearest the surface, we mean the surface along the course of the vein, the upper edge,

and not the lower edge, or side edge. * * * Suppose that instead of the mountain being in its normal condition, the south face of the hill was abraded, cut down vertically, as you would cut a cheese, as shown in cross-section on the figure, leaving the edge of the vein from the original outcrop to the bottom of the figure between the hanging and foot-wall planes, there indicated, exposed to the observer as we see it in the figure. In other respects the vein preserves its position in the mountain as described. Will it be seriously contended that the exposure of the edge described constitutes an apex, because it appears at the surface on the perpendicular face of the hill?"

And in the same section is found this language:

"It has sometimes happened, especially with veins of slight inclination from the horizontal, that in the process of erosion, the side edge, representing a dip-line, has been exposed to constitute an outcrop. * * * *It is quite apparent that such outcrops do not constitute apices.*"

In discussing the vein in the Stewart and Ontario claims, Professor Andrew C. Lawson testified as follows:

"The Stewart vein is not a vein by itself or alone, it is a part of a system. We have several other veins constituting this system, namely, we have the Jersey vein; we have the Francis vein; we have the Barr vein; we have the Caledonia vein; we have the Sierra Nevada vein, and we have the Stewart vein. These constitute a system of veins running through

this country, and the general strike of these veins (now I am using the word general very deliberately, and I am perfectly aware that in their strike we find irregularities, but the general strike of that system is northeasterly, and the general dip of that system is southeasterly, and that general fact applies to this particular case; what is true of the general direction, what is true of the group of veins as a whole in their general extent if true in this particular case, that the strike, for example of the vein in the Ontario workings in the Gray stopes is about north thirty east, in the Frank stopes it is about north forty east, and in the course of the upper workings in the Senator Stewart Fraction and in the Senator Stewart Claims we have the same northeasterly trend of the ore strike of the vein. In a general way, it is in the neighborhood of north thirty east, and the general dip is southwesterly at an angle usually between thirty and forty, but variable because of two things, namely, that the real dip is not a constant, steady value, angular value, and due also to the fact that the vein is broken more or less by faults so that the its course downward on its dip is not a constant value." Trans. p. 525-526.

Practically all the witnesses for the appellees and some of the witnesses for the appellant testified that the course of the Stewart vein was about north thirty degrees east, and that it had a downward course southeasterly of about forty degrees from a horizontal. (Trans. pp 147, 148, 636, 641, 528, 543, 888, 890.)

Mr. Wiley testified that the upper edge of the vein beneath the Clancy Fault is practically level. (Trans. p. 637.)

The testimony is undisputed that the edge of the vein where it first encounters the Osborn fault near the north side line of the Stewart Fraction Claim is about 350 feet higher than the edge of the vein against the Osborn Fault beneath the east end line of the Stewart Fraction Claim, and that this edge inclines downward southeasterly about thirty degrees from a horizontal. (Trans. pp. 135 and 373.)

The witnesses also testified that the course of the edge of the vein against the Osborn Fault is north forty-one degrees west. (Trans. pp. 168, 512, 571, 774, 705, 636, 641.)

Mr. Wiley, one of the witnesses for the defendant, testified:

“If the country above the Clancy Fault were eroded, we would have a substantially level line as represented by this pointer from the Siligo tunnel to the south. If we follow the apex of the vein beneath the Clancy Fault we can walk northeasterly on a comparatively level line. When we reach the Siligo tunnel we can step off into space.” (Trans. p. 637.)

“If the country above the Clancy Fault were eroded you would have certain conditions, and then carry the analysis further and

supposed that the country under the Osborn Fault were eroded, and you would have entirely a different condition. In one case you would have the top of the vein outcropping on a straight line; in the other you would have the undercut bottom edge of the vein coming out in an overhanging cliff.” (Trans. pages 644 and 645.)

The Court will observe in examining the maps that the incline shafts within the Stewart Mining Claim descend on the vein in a southeasterly direction and that the drifts on the vein are substantially parallel to the end lines of the claim. The model shows that the edge of the vein which is nearest the surface is the edge beneath the Clancy Fault.

Mr. Sarles, one of the witnesses for the defendant, presented a cross-section, through the west end line of the Ontario Claim, and showed that according to the principles which appellant invokes in this case, the Ontario would have an apex against the fault which separates the Gray and Frank ore bodies beneath the Ontario Claim, and that one could follow downward in the direction of the end lines of the Ontario Claim from this “terminal edge” into the Stewart Fraction Claim. (Trans. pp. 841 and 843.)

The Ontario Claim was admitted to have been located long prior to the location of the Stewart Fraction, so that if the edge of the vein against the

Osborn Fault, and the edge of the vein against the No. 11 Fault were both considered apices, the Ontario would own the vein between its end lines extended by virtue of its seniority. If the edge of the vein against the Cate or Ontario Fault is an apex, each of several other claims would have apex rights.

The edge of the vein in the Ontario against the No. 11 Fault has the merit of being an upper edge, whereas, the edge of the vein against the Osborn Fault is a bottom edge.

If we are to piece the broken parts of the vein together, why not piece them all together, why omit that part of the vein in the upper Stewart works? Under the theory advanced by plaintiff, applied to the vein here in controversy, we would have plenty of apices; we would have the apex in the upper Stewart works, the Clancy Fault apex, the apex against the Osborn Fault, the apex described by Searles along the No. 11 Fault, and the apex against the Cate of Ontario Fault.

Counsel for appellant contend that because in following the vein from the upper edge against the Osborn Fault in the direction of the end lines of the Stewart Fraction Claim, one may reach a lower level that that establishes the fact that such edge constitutes an apex.

Professor Lawson illustrated the fallacy of this contention while under cross-examination, he said:

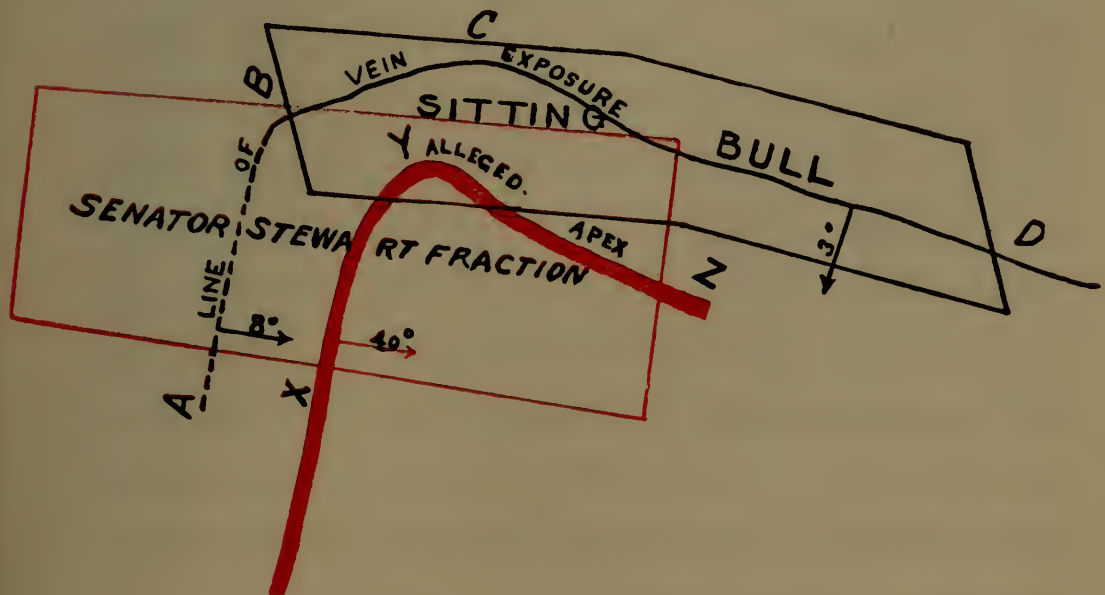
"Now, it is entirely possible to go downward even from the bottom of the vein. I can take a downward course from the bottom of the vein and keep on going downward and be in the vein all the time, so that considerations of that kind are to be taken into account when I answer questions of this kind as to whether these ore bodies are down from that point or not." (Rec. p. 564.)

Witness drew a diagram, which was introduced in the record as Exhibit G, and then said:

"This diagram illustrates the kind of a downward course which you have in this case."

The case of Duggan v. Davey, 4 Dak. 110, is directly in point.

The following diagram will illustrate the similarity of the two cases:



The question in the Duggan v. Davey case was whether the edge of the vein within the Sitting Bull Claim from B to D constituted an apex. The edge of the vein in the Sitting Bull dipped southerly at an angle of three degrees from a horizontal; the vein dipped easterly at an angle of eight degrees from a horizontal. The Court held that the edge of the vein B-D was the end of the vein along the line of its dip and was not the apex thereof. We have placed on diagram B a correct representation of the lines of the Stewart Fraction Claim, together with the apex as claimed by the Stewart Company, in order that the Court may see that the decision in Duggan v. Davey is decisive of this. In fact, this Court would not be required to go as far as the Court did in the case of Duggan v. Davey to determine this question in favor of appellees. The vein in the Stewart Fraction claim dips easterly forty degrees from a horizontal. The edge of the vein from X to Y is practically level. The edge of the vein from Y to Z has an inclination southeasterly thirty degrees. A cross-section through the vein near the east end line of the Stewart Fraction and parallel thereto shows an average inclination of eight degrees.

Counsel for appellant contend that the case of *Duggan v. Davey* was incorrectly decided because in the course of the opinion in that case, the trial court stated that the law intended the end lines to be laid substantially at right-angles to the strike of the vein. This statement had little, if anything, to do with the decision of the case. After making it the Court said: "I have been led into some digression from the strict line of my argument." Moreover, the Supreme Court of the United States in the *Flagstaff v. Tarbet* case, 98 U. S. 463, said:

"The right to follow the dip outside of the side lines is based on the hypothesis that the direction of these lines correspond substantially with the course of the lode or vein at its apex on or near the surface."

The Court has frequently awarded extralateral rights when the direction of the side lines did not correspond substantially with the course of the lode at its apex near the surface, for example when the vein crossed an end and a side line. Would anyone contend that the decision of the Court in the *Flagstaff* case because of that statement was erroneous upon the controlling question involved in that case?

One text writer takes the position that while the definition of top or apex was correctly given, in

Duggan v. Davey, still there was such a slight difference between the dip southerly from the edge C-D in the Sitting Bull Claim and the dip easterly from the westerly edge A-B, that the court should have ascertained what the general direction of the veins in that section of the country was, and resolved the question accordingly.

If that theory were to be adopted in this case, it would result in an affirmance of the judgment, because, as Professor Lawson pointed out, the general course of the veins in the system of which the Senator Stewart vein is a part, is about North 30 degrees East (pp. 525-526), and therefore the edge of the vein against the Osborn Fault would not constitute an apex.

The other writers upon the subject of mining law approve of the definition and reasoning of the Duggan v. Davey case.

Lindley on Mines, Sec. 310! Costigan on Mining Law, 138.

Counsel for appellant, in their brief, say:

“If the locator is permitted to follow from the terminal edge of his vein on a downward course, he never can encounter another terminal edge of the same vein with a downward course therefrom.”

This statement is obviously incorrect.

Let us suppose that the country had been eroded southwest of the No. 11 Fault, that edge would, under the theory of appellant, constitute an apex, and would be encountered in following from the edge against the Osborn Fault in the direction of the end lines of the Stewart Fraction Claim.

Counsel is mistaken in saying that it was conceded in the trial court that there is a downward course from the edge of the vein against the Osborn Fault in the direction of the Stewart Fraction end lines. It was conceded, and may be here conceded, that the elevation of the edge of the vein against the Osborn Fault is higher than the elevation of the ore bodies beneath the Ontario Claim, but that is due to the fact that the edge of the vein against the Osborn Fault has been bent upward, and after leaving the south side lines of the Stewart Fraction Claim pursuit even in the direction of the end lines of the Stewart Fraction Claim must be made substantially on the level until the No. 11 Fault is encountered. In other words, in attempting to follow the vein southerly, appellants may go downward while they remain within the limits of their own claim, but when they attempt to pursue the vein beyond the south side

line, they pursue it, not upon the vein's downward course, but upon a horizontal. This becomes apparent from an inspection of appellant's cross-section VI.

Counsel contend that in determining what constitutes the apex of a vein, the Court is entitled to consider only that portion of the vein within the claim containing the alleged apex. In other words, that the question must be approached from the standpoint of the owner of some one edge of the vein. This is a fundamental error. We are not here engaged in trying title to an edge of the vein within the Stewart Fraction Claim, but we are engaged in determining title to certain ore bodies beneath the Ontario Claim. In determining the ownership of those ore bodies, we start with the presumption that they belong to the owner of the claim overlying such ore bodies. If someone asserts title to the ore bodies by virtue of an extra-lateral right, the position of those ore bodies may be looked to in determining the ownership of the apex of the vein of which the ore bodies are a part. All of the witnesses in this case testified that the ore bodies within the Ontario dipped easterly between 40 degrees and fifty degrees from a horizontal. In looking for the top of the vein

containing those ore bodies you would look “up the dip” in a westerly direction, and not northerly upon a level.

As said by the Supreme Court in the United States Mining Company v. Lawson, 207 U. S. 1, the question is, where is the apex of these ore bodies, and who owns it?

A glance at the defendants’ model will make it apparent to the Court that the top edge of the vein beneath the Ontario Claim is west of the west end line of the Ontario and not north of the north side line.

APPELLANT’S GLASS MODEL.

Plaintiff’s glass model gives a false impression of the position of the edge of the vein with reference to the ore bodies in dispute. Notwithstanding the fact that counsel contend that the direction of the end lines of the claim covering the edge of a vein is of paramount importance, in preparing a model appellant’s witnesses prepared the slides in a direction different from the direction of the end lines, in order to give a false impression of the downward inclination of the vein.

Most of plaintiff’s cross-section maps are open to the same objection.

Mr. Boehmer pointed out very clearly the misconception which could be created by use of the glass model with the slides made as they were made by plaintiff in this case. (Trans. p. 898.)

To sum up, appellant, in order to succeed, must persuade the Court that the trial court in this case was wrong, the state District Court was wrong, the Idaho Supreme Court was wrong, the Supreme Court of Dakota Territory was wrong, and that the word "bottom" should be substituted in the statute for the word "top."

The State Court, which first determined this question, decided that the vein crossed the south side line of the Stewart Fraction Claim, and then continued on its course substantially parallel to the end line until it reached the vicinity of the opposite side line, but did not reach any other line of the claim. The Court accordingly held that the south side line constituted an end line. The Supreme Court of the State of Idaho reached the same conclusion, and the United States District Court in this case arrived at the same result.

There is no conflict between these decisions and the decision in the case of *Clark v. Fitzgerald*, referred to in appellant's brief, or with any decision of any court.

DOWNWARD COURSE.

It is not necessary for us to ask the Court to pass upon the correctness of the statement made by the Supreme Court of Idaho in the case of the Stewart Mining Company v. the Ontario Mining Company to the effect that a vein cannot be followed more upon its onward course than upon its downward course. That statement was not necessary to the decision of the Supreme Court of the State of Idaho, and an examination of that question will be unnecessary here.

If the edge of the vein against the Osborn Fault is not the apex of the ore bodies in controversy (and the Supreme Court of Idaho held that it is not), appellant is not entitled to recover.

By examining defendants' model, which counsel for appellant admit is substantially correct, it can be seen that in following the vein from its end against the Osborn Fault in the direction of the end lines of the Stewart Fraction Claim into the Ontario Claim, that, except for a short distance near the fault, the pursuit of the vein is substantially on a level. In other words, that the pursuit can only be made southerly for a short distance from the fault downward and thereafter for sev-

eral hundred feet must be followed on a level.

Mr. Wiley testified that if the country were eroded above the Clancy Fault that the edge of the vein beneath the Clancy Fault could be followed substantially on a level. The course of this edge of the vein is north 30 degrees east, and the course of the east end line of the Stewart Fraction Claim is north 24 degrees east. It is obvious that the vein near the east end line of the Stewart Fraction is substantially on a level with the ore bodies beneath the Ontario which would be intersected by a plane drawn downward through the east end line of the Stewart Fraction Claim extended southerly in its own direction.

This Court has only to look at the maps and look at the drifts which are admittedly upon the vein and practically level, to see that the pursuit of the vein from the Osborn Fault to the Ontario is for a great distance upon the level. In fact, the witnesses for the plaintiff admitted that in going from the east end line of the Stewart Fraction through the works upon the vein southerly in the direction of the Ontario, that they traveled upon a level; and while they contended that when they reached a point within the line of the Ontario, they descended through a short raise, it was also shown

that the Gray Stope of the Ontario is now above the top of that raise. The part of the course which is "downward" is wholly within the Stewart Fraction; when they begin to pursue their extralateral rights they follow a level course.

If counsel are correct in their contention that they can follow downward for a few feet within their own claim and thereby become entitled to follow the vein on a level for several hundred feet, it would result that one who had a bent-up end of a vein within his claim might pursue it on a level and upon the strike of a vein for several thousand feet, or even for several miles, without reaching any lower elevation than the lowest elevation within his own claim.

Unless this Court finds, as a matter of law, that the pursuit of a vein on the level for several hundred feet, is a pursuit of a vein on its downward course, appellant is not entitled to judgment in this case, and it does not require the discussion of the question whether appellant is following more upon the strike than upon the dip.

If this Court should decide that the end of the vein against the Osborn Fault constituted an apex, and that appellant was entitled to follow from that

end of the vein in the direction of the end lines of the Stewart Fraction Claim extended, what would become of that portion of the edge of the vein beneath the Clancy Fault, which appellant also contends is apex, and which runs substantially parallel with the east end line of the Stewart Fraction Claim, and is practically level? Would that become in law a part of the dip, although in fact, it is the top edge of the vein and is level?

This question was decided in the case of the Southern Nevada Gold and Silver Mining Company v. Holmes, 73 Pac. 760. Plaintiff in that case owned a claim situated somewhat as the Ontario Claim is located here. The owner of that claim brought suit to prevent the defendant from pursuing a vein into his territory. The trial court gave the following instruction, which was approved:

“If you find from the evidence that the defendant entered upon a lode having its apex within the exterior boundaries of the plaintiff's location and extracted ore therefrom between planes drawn vertically downward through the end lines of his location, the right of plaintiff to recover damages for such act would not be affected by proof merely that the place from which such ore was extracted could be reached by going continuously through lode matter or on a lode having its apex within the

In *Parrot Co. v. Heinz*, 25 Mont. 139, it was held that the owner of a mining claim is *prima facie* the owner of a vein or lode within the vertical planes of the lines of his own claim, and that presumption would prevail until it was shown that the vein had its outcrop in the surface of some other located claim in such a way as to give the owners of the latter the right to pursue it on its downward course. This decision was approved by this Court and by the Supreme Court in *St. Louis M. Co. v. Montana M. Co.*, 113 Fed. 900, 194 U. S. 235.

This Court is not technically bound to follow the decision of the Idaho Supreme Court based upon the same facts as are here involved and relating to the same subject matter, because Bourne was not a party to that litigation. But his lessees were, and their success depended upon his ownership. It should require a strong conviction to compel this Court to disagree with the Idaho Court, where that Court determined upon the identical evidence before this Court that Bourne owned the ore bodies in dispute.

Even in questions in which the Federal Court exercises its own judgment, the Federal Court

should for the sake of comity, and to avoid confusion, lean to agreement with the State Court if the question is balanced with doubt.

Kuhn v. Fairmount Coal Co., 215 U. S. 349;
S. C. 179 Fed. 191 (C. C. A. 4th).

Fretts v. Shiver, 181 Fed. 279.

Respectfully submitted,

MYRON A. FOLSOM,

Counsel for Appellees.

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United States
Circuit Court of Appeals
For the Ninth Circuit.

STEWART MINING COMPANY,
Appellant,
vs.
JONATHAN BOURNE, JR., et al.,
Appellees.

**SUPPLEMENTAL BRIEF FOR
APPELLANT.**

Whatever our personal view of the soundness of the decision in the Work-Jackpot case may be, it concludes the proposition that after patent the existence of a vein in the discovery shaft is conclusively presumed, and in the absence of countervailing testimony that such vein extends lengthwise of the claim and is intersected by both endlines thereof; and since it finds support from the decisions of the

Supreme Court of the United States, it must be regarded as authoritative.

It being conceded that the vein in controversy is a secondary one, the extra-lateral rights of the appellant upon it, are governed by those of the discovery vein. Their general direction must therefore be approximately southward and underneath and across the southerly sideline thereof.

Assuming then, for the sake of the argument, the correctness of appellee's contention concerning the apex of this vein, it is both important and interesting to determine what the appellant's extra-lateral rights upon it are, and whether they should differ in any legal respect from appellant's contention.

Whether the vein in controversy was terminated in its northerly course by the Osborne Fault, or whether it was formed subsequent to the occurrence of that Fault, is, we think, immaterial. The controlling fact is that beyond, and to the north of the southerly boundary of the Osborne Fault, there is no vein. Its northerly extremity is the southerly line of that Fault, and so far as regards this controversy, it never had an existence beyond that point.

It is equally immaterial to our purpose whether the curvature of the vein at and near its northern terminal was or was not caused by the Osborne Fault. The important thing is the admitted fact that the apex of the vein in controversy crosses the

southerly sideline of the Senator Stewart Fraction claim, proceeds in a northeasterly direction, finally curving around to the eastward, where according to appellees' contention, it terminates wholly within the Senator Stewart Fraction boundaries at a point some distance to the south of its northerly sideline. Its line of dip alters necessarily with its change of strike, and if it continues in its course downward through the southern boundary line of the claim into the appellees' territory, the right of appellant to follow it there is undoubted. The controversy can only concern the easterly and westerly limits of the appellant's extra-lateral right.

If the apex of the vein in its northeasterly course intersected the northerly sideline of the claim and continued beyond that point, there is abundant authority for confining the appellant's extra-lateral right within vertical planes drawn parallel with the endlines at the points upon the sidelines where these intersections occur; and this for the obvious reason that extra-lateral rights appertaining to other locations made upon the vein outside of the boundaries of the claim could not be otherwise safeguarded. But here no such conditions exist. There is no such crossing and consequently no reason to justify the application of the doctrine just announced. Nor is there any authority to support the contention that appellant's extra-lateral rights must under these anomalous con-

ditions be confined to the west of a line drawn parallel to the endlines and commencing inside of the claim where the apex of the vein is said by the appellees to terminate. And it would seem to follow that the right should in such case be bounded by the easterly endline extended in its own direction, since this deprives no other location on the vein of any right whatever, nor takes from the appellees anything covered by their patent. There are decisions whose logic supports this view. They are based upon less favorable conditions; for they concern veins continuing in their own direction beyond the point in controversy, and covered by other locations.

It is always proper and frequently instructive to permit expert witnesses in cases like this to trace the vein away beyond the premises in controversy, and to draw conclusions based upon such premises, but after all the law is concerned with the physical conditions within the premises directly involved, and when as here, they are perfectly apparent, the rights of the litigants should be adjudged upon them. We know positively that the dip of that part of the secondary vein included within the appellant's claim is southeasterly. We also know that a line drawn parallel to the endline from the point which appellees assert to be the northeastern extremity of the vein would be at right angles to it, but not for long. If, however, we follow the vein

along the Osborne Fault to its intersection with the easterly endline, which under the law is the eastern limit of the appellant's extra-lateral right upon any and all veins within the claim, and then extend that line in its own direction, it gives to the appellant the extra-lateral right which, by reason of the apex conditions here appearing, conflicts with no other apex right, and seems consonant both with justice and common sense. If it were the discovery vein, the extra-lateral right would under the authorities be across the southerly sideline, since the apex does not intersect both the sidelines. There is no reason for making a distinction because the vein is a secondary one.

In the case of Walrath vs. Champion Mining Company, 63 Federal, 552, a secondary vein began within the boundaries of the Providence claim and extended northerly across one of its diagonal boundary lines into and beyond the New Years Extension and New Years claims of the Champion Company. The controversy involved extralateral rights claimed by both parties upon this secondary vein, and the line as finally fixed by the Circuit Court of Appeals, and confirmed by the Supreme Court of the United States, was the northerly line of the Providence which its discovery vein intersected, and which by reason of that fact became the endline of the claim. This line lay a considerable distance to the north of the line crossed by the apex of the

secondary vein, so that under the decision plaintiff was given extra-lateral rights upon the secondary vein to that line, notwithstanding the apex of the vein immediately above that line was outside of the Providence boundaries and within the defendant's New Years Extension claim. Although Judge Lindley's criticisms of the opinion are pertinent, the decision having received the approval of the Court of Last Resort, is the law until it shall determine to the contrary, and it is directly applicable to the admitted facts of this case.

In the case of Davis vs. Shepherd, 31 Colorado, p. 150, the Court instructed the jury to the effect that although the Fairmont was patented before the Refugee, the former would not include any part of the Refugee vein which had its apex outside of the surface boundary lines of the Fairmont, and that so much of the vein as apexed outside of the Fairmont and within the boundaries of the Refugee, belonged to the latter. The vein was as to the Fairmont location a secondary one, crossing the tip of its southeastern corner at an acute angle with its endline. The extra-lateral right of the latter was more along the strike than along the dip of the vein.

The result of this decision was virtually to extend the extra-lateral right of the Refugee, first, to the north, and then to the northwest, precisely as we here contend the law should be applied to the appellant's extra-lateral right upon the assumption of

appellees' theory of the case.

A similar decision is that of the Jefferson Company vs. The Anchoria-Leland Company, 32 Colorado, 176. It is true that in this case the Supreme Court of Colorado assumed to determine what it was pleased to call the intralimital right, but inasmuch as the right defined was wholly within the patented territory of the Anchor mine of the appellee, the case is authority for our contention here, although the vein in that case did not terminate in either direction within the limits of the controverted territory.

In the Del Monte case, 171 U. S., 75 and 89, Mr. Justice Brewer said:

“The location upon the surface is not made with the view of getting benefits from the use of that surface. The purpose is to reach the vein which is hidden in the depths of the earth, and the location is made to measure rights beneath the surface. The area of surface is not the matter of moment; the thing of value is the hidden mineral below, and such locator ought to be entitled to make his location so as to reach as much of the unappropriated and perhaps only partially discovered and traced vein as is possible.

“This places a limit on the length of the vein beyond which he may not go, but it does

not say that he shall not go outside the vertical sidelines unless the vein in its course reaches the vertical planes of the endlines. Nowhere is it said that he must have a vein which either on or below the surface extends from endline to endline in order to pursue that vein in its dip outside the vertical sidelines. Naming limits beyond which a grant does not go is not equivalent to saying that nothing is granted which does not extend to those limits. The locator is given the right to pursue any vein whose apex is within his surface limits on its dip outside the vertical sideline, but may not in such pursuit go beyond the vertical endline, and this is all that the statute provides. Suppose a vein enters at an endline but terminates half way across the length of the location, his right to follow that vein on its dip beyond the vertical sidelines is as plainly given by the statute as though in its course it had extended to the farther endline.”

This should be equally true of a secondary vein crossing one sideline, but terminating before it reaches the other.

We are unable to distinguish between the doctrine of the Providence-Champion case, and that which is here contended for. The fact that the Providence claim was located and patented under the Act of 1866 is immaterial, since the extra-lateral

rights of all such claims are also defined by and enforced under the subsequent Act of 1872, which, omitting the words “dips,” “spurs”, and angles”, gave extra-lateral rights upon veins on their “downward course”. Hence, we assert that the contention and conclusions of the appellees as regards the physical facts, if conceded, should not deprive the appellant of its right to ownership of the ore deposits in controversy. Our rights should be the same under their as under our own contention.

But they are not correct. The vein in the Stewart Fraciton claim presents a terminal edge, extending northeasterly from the southeasterly sideline; it then turns to meet the Osborne Fault and proceeds in an easterly and westerly direction across appellant’s endline. If from this terminal edge appellant advances upon the vein in a downward course continuously from any part of it within the endlines extended in their own direction, its title to the ores contended for cannot be successfully challenged upon the ground that the top or apex of the vein is not within the appellant’s claim.

It is said that the Osborne Fault has cut the vein off in such wise that if it were removed, the hanging wall of the vein would present the appearance of an overhanging cliff, but that would be equally true if the Osborne Fault running northerly and southerly had cut the vein in that direction at an angle more vertical than the dip of the vein.

Hence, the assertion standing by itself proves nothing. The edge of the vein from the place where it crosses the Stewart Fraction's easterly endline to the point where it crosses the southerly sideline is the terminal edge of the vein. There is nothing beyond it to the north or to the west anywhere which by any refinement of reasoning can be called a vein. A location extending easterly and westerly upon a discovery made upon the northerly and southerly edge would be good in law. The fact that it is a secondary vein entirely within the claim cannot affect the legal rights of the owner. If the appellant's boundaries include the edge or apex, the rest of its contention cannot be avoided.

Pioneer decisions, always important, are sometimes the best ones, especially where they involve definitions which harden into standards for the acquisition and defense of property rights.

In *Iron Silver Mining Company vs. Murphy*, 1 Morrison Mining Reports, 552, an "apex" case, Judge Hallett said:

"It used to be contended here in this Court and in the Courts of the State that they could not hold the vein if it declined in only a small degree from the plane of the horizon; they said that the law should be applied to veins which are more vertical in their course, but we have heard nothing of that in this case. That point was decided against that view whenever it was

made.”

Page 553—“The top or apex is the end or edge or terminal point of the lode nearest the surface of the earth. It is not required that it shall be near or within any given distance of the surface. If found at any depth and the locator can define on the surface the area which will enclose it, the lode may be held by such locator.”

Stevens vs. Williams, 1 Morrison Mining Reports, 571, Justice Miller said, in charging the jury:

“If there is any departure in a downward course it is sufficient.”

He also added that

“The top or apex within the Act of Congress is the highest end or termination of the vein and this is so even though at any intermediate point or points when the vein is continuous it rises higher than such highest end, *it being essential to such top or apex that there must be no vein continuing beyond it.* Where it ceases to continue in the direction of the surface is the top or apex of that vein.”

In that case the contact vein in controversy dipping at an angle of about 12 degrees from the horizon, when near the surface descended for some

distance in a course nearly parallel with the contour of the hill, and emerged from solid rock a considerable distance below its highest point. This end of the vein was declared to be its apex, although it ascended for some distance before assuming its normal dip into the body of the mountain. The fact then, if it be so, that the declension or downward course of the Stewart secondary vein toward and into the premises of the appellees is a gentle one varied by swells in the foot-wall does not affect the appellant's right if the downward course is constant.

A location made anywhere upon the Ideal vein in Fig. 19, page 701, of Lindley on Mines, from which the vein dips in a downward course, would fully comply with the requirements of the statute, and if senior to one made at the extreme top of the apex, would take precedence in extra-lateral right upon the vein throughout its entire extent. A change in a direction of the endlines of his theoretical location upon that vein would give it extra-lateral rights.

Mr. Lindley emphasizes the fact that variations of outcrop increase as the dip approaches the level of the horizon, which is but saying that erosions affect the edges of horizontal stratifications more extensively than those which are vertical. The fact emphasizes the soundness of our contention.

A test of the integrity of appellant's claim may

be illustrated by assuming a senior location upon the easterly and westerly terminal edge of the Stewart Fraction vein and a junior one located upon the northerly and southerly edge thereof, the latter so laid as to include all of that part of the north and south edge lying within the Stewart Fraction claim. Should the doctrine of the Circuit Court prevail, it would in such a case not only deprive the senior location of its extra-lateral claim, but as well of the vein within its patented surface, and this notwithstanding the fact that being the discovery vein it constituted the thing of value covered by the patent and the basis and life of the claim itself. Such a result would be worse than confiscation.

If the endlines of the Stewart Fraction claim were laid exactly north and south instead of southwesterly, their planes extended would be more nearly at right angles to the normal dip of the vein and its "downward course" would be undoubted. If the claim had been laid northeasterly and southwesterly along the northerly and southerly terminal edge of the vein, but with endlines running northwesterly and southeasterly, their planes extended would be upon the downward course of the vein and would exclude the ground in controversy; but the right to so much of the vein within these planes would be undoubted. Because they are laid as they are, the right of appellant to the ore in suit should not be denied. Surely this right cannot depend

upon the direction of the endlines so long as they are endlines in law as well as in fact.

The appellees do not pretend to be possessed of the apex of this vein. That may be no concern of the appellant unless it is the owner of such, and can trace it continuously therefrom downward into the appellees' territory. But since the appellees' patent excludes from the operation of its granting clauses all veins within the granted premises which apex outside of them, this exclusion becomes effective whenever that apex right is established in another. The appellant is therefore taking nothing from the appellees to which it can assert any title other than that of possession. This being so, it is both unjust and inequitable to so construe the mining laws as to deny their application to an apex right founded upon what appellees are pleased to term the side of the vein. The statute refers neither to the side nor the end of a vein, but to its top or apex; neither to the dip nor angle of a vein, but to its downward course. It takes no account of the effect of erosions or cutoffs upon this top or apex, so long as the vein can be followed from it to a lower level. A mountain range presents many jagged and angular lines to the vision, but the course is downward from them all until the valley is reached. Some may be very steep, others inclining gently, but they are all descents from a higher to a lower level. So with the edges of this vein, within the appellant's claim.

The slopes are all downward and into the appellees' premises. The facts, the equities and the law are all with it and the decree should be reversed with instructions to the trial court to enter a decree in accordance with the prayer of the complaint.

Respectfully,

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